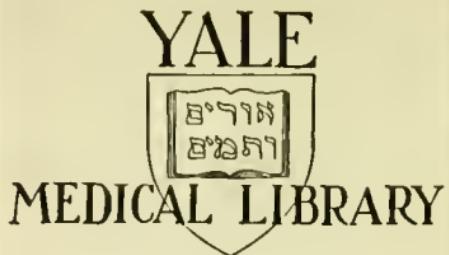


THE HOME CARE OF SICK CHILDREN

EMELYN L. COOLIDGE, M.D.



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THE HOME CARE
OF SICK CHILDREN

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THE HOME CARE OF SICK CHILDREN

A GUIDE FOR MOTHERS IN
THE CARE OF SICK CHILDREN

By

EMELYN LINCOLN COOLIDGE, M.D.

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EDITOR OF THE BABIES' DEPARTMENT
OF THE LADIES' HOME JOURNAL

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"Does God fix the death rate? Once men were taught so, and death was regarded as an act of Divine Providence, often inscrutable. We are now coming to look upon infant mortality as evidence of human weakness, ignorance, and cupidity. We believe that Providence works through human agencies, and that in this field, as in others, we reap what we sow—no more and no less."

DR. L. EMMETT HOLT

INTRODUCTION

THE Health Departments of New York City, Chicago, and many other large cities throughout the United States, agree that the chief causes of death in infants and young children are diseases of the gastro-intestinal tract, respiratory system, and the infectious diseases. Babies born prematurely and those having some defect at birth also make up a large class of the early deaths among infants.

It is thought that if mothers could be made to realize how necessary it is to learn about the care of babies, the infant mortality would be very much decreased, and much is being done to educate mothers in this direction. Many books have been written on the prevention of disease and general nursery hygiene, and they have done much good, but there are times when the baby will become ill although he has the best of care, and then the mother must usually be the one on whom the chief burden of responsibility falls. She must realize just when the child needs a physician and must carry out the doctor's orders when he

prescribes the treatment. Often the busy physician cannot stop to give object lessons or describe in the minute detail needed just how to apply the treatment he wishes carried out. It is then that the mother feels all at sea; she is more or less worried and wants to do her best but needs a guide to help her. Not every family can afford a trained nurse every time there is illness in the house. It is with the intention of helping and guiding mothers when they must nurse their children through the most common illnesses that occur in nursery days that this little book has been written.

The care of premature and delicate babies, the most common diseases of the gastro-intestinal and respiratory tracts, the infectious diseases and a few other diseases frequently occurring in childhood have been discussed as simply as possible. The usual methods of feeding and treating disease in children have been considered in detail—all with the idea of assisting the mother in her time of greatest need, and helping her to intelligently carry out her physician's directions.

EMELYN LINCOLN COOLIDGE, M.D.

New York.

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THE HOME CARE OF SICK CHILDREN

CHAPTER I

GENERAL CARE AND FEEDING OF SICK CHILDREN

THE SICKROOM

IF the child is to have a long illness, like scarlet fever or typhoid fever, or any ailment which is likely to confine him to one room for any length of time, great care should be taken to see that the room is suitable for him.

It should be situated at the top of the house, as germs fly upward, and it will therefore be much easier to prevent others from taking the disease; it should be on the sunny side of the house and large enough to be well ventilated. If possible there should be an open fireplace in the room, as this greatly aids ventilation and is convenient for burning cotton and other small articles which it is not safe to take from the sickroom. In winter it is very convenient to have some window boards with holes bored into them to regulate the air in the room; in summer there should be screens in the windows.

The child's bed should be placed so that he does not

have to lie and stare at the direct light. Plenty of sunshine should be admitted to the room, but his eyes should be protected from the glare. There should be no carpet on the floor; it should be of either hardwood or linoleum which can be wiped up daily with a damp cloth. Pictures that can be burned at the end of the disease are best if the child is able to look at any; the same is true of toys —they should be inexpensive and easily washed or destroyed. Furry animals and such articles should not be allowed in the sickroom.

Growing plants may be allowed but very few cut flowers, and these should be removed at night. A screen with wash curtains is very convenient, also a bed table or tray on legs. Only the necessary furniture should be allowed, and this should include no upholstered pieces. A metal bed with comfortable springs and a good hair mattress and pillow protected by rubber sheeting and pads should be used. A bathroom near at hand will greatly lessen the work of taking care of the child.

The mother should wear a wash dress and keep her hair covered by a pretty cap while in the sickroom. If the disease is one that can be carried, she should change her dress and cap and carefully wash her face and hands before going to another part of the house. Paper bags that will hold cotton and gauze used in the sickroom and which can be burnt with their contents are very useful to have. Laundry that must be washed in another part of the house should be carried in covered pails or bags. If the disease is a contagious one it should first be soaked in a disinfectant. A wet sheet hung at the door of the sickroom will help to keep the germs from flying about the

entire house; for this purpose a solution of carbolic acid—one part of the acid to twenty parts of water—is usually used. This solution may also be used for soaking the patient's clothes and bed linen and for moistening the cloths with which the floor is wiped or the furniture dusted—dry dusting should never be allowed in a sickroom. In special cases like typhoid fever, the stools and urine must be covered with a disinfectant like the carbolic acid mentioned above before they are thrown down the toilet.

FUMIGATION AND DISINFECTION

FUMIGATION OF THE SICKROOM

To successfully fumigate a sickroom it must be made practically air-tight; all windows should be closed; cotton batting should be stuffed into the cracks, or pieces of paper pasted over them. The same is true of the doors and keyholes. If there is an open fireplace, register, or wash basin, with connecting pipes in the room, it must be pasted over with large sheets of paper so that none of the fumes shall escape through those channels. All bureau drawers, closets, and cupboards should be left wide open so that they may be thoroughly fumigated. Books which must be kept should be hung with the leaves exposed and covers open; toys should be destroyed if possible; if not, they must be thoroughly fumigated.

If sulphur is to be used for fumigation sheets dipped in water and hung about the room on ropes will help much in the thoroughness of the process. Some bricks should be placed in the center of the room and on these a small tub or deep pan partly full of water, one or two bricks

should be placed in this on which the smaller pan which is to contain the sulphur is to stand. The roll sulphur should be cracked into small pieces, and finally some alcohol poured over these. Three pounds of roll sulphur are needed for every thousand cubic feet of room space. After all is ready the alcohol on the sulphur should be lighted, and the final door of the room closed and sealed; it should then be left for twelve to twenty-four hours, then opened and aired. The walls, floor, furniture, and everything in this room should be washed, either with a cloth saturated with bichlorid of mercury, 1-1,000, or with carbolic acid 1-20. The mattresses and pillows should be sent away to be steamed, under pressure if possible; if not, they should at least be ripped open to some extent while the room is being fumigated. The paper on the walls should be scraped off and fresh put on if one can afford it and the woodwork repainted. After the thorough washing the room should be exposed to sun and air for at least twenty-four hours, or better, for several days. Sulphur will ruin brass and silver as a rule, and for this reason many prefer to use formaldehyd gas. Special apparatus is needed for effectual fumigation, and this may be rented from large concerns in cities, or these firms will contract for the whole process.

Holt gives the following method of home fumigation with formaldehyd: "For each 1,000 cubic feet of space there is required 1 lb. of quicklime, 6 oz. of a 40 per cent solution of formaldehyd, 2 oz. of a saturated solution of aluminum sulphate. The ingredients should be mixed in a bucket or bowl which should stand upon wood or in a vessel containing water, as considerable heat is generated.

The lime is first moistened with water; then the two solutions previously mixed are poured on and thoroughly mixed with the lime by stirring. The liberation of the formaldehyd gas takes place very rapidly, practically all of it in fifteen or twenty minutes. For a large room several receptacles are better than a single large one."

Even after all this is done, bedding, blankets and whatever can be, should be washed or boiled as an additional precaution.

For fumigation after influenza, colds, and the milder infectious diseases, formalin candles are often used; these are convenient, and directions for using them may be obtained where they are bought. They will not do for cases of scarlet fever, smallpox, or where there has been a serious and prolonged infectious disease.

VIEWS OF THE NEW YORK DEPARTMENT OF HEALTH ON FUMIGATION IN PRIVATE HOMES

For a period of about one year the New York Health Department has made experiments pertaining to the value of fumigation after the infectious diseases of childhood. They have come to the conclusion that very thorough scrubbing with soap and water and very thorough airing of the entire premises is as useful in preventing the spread of these diseases as fumigating had been. Often painting and repapering of the house is also advised. Personally, I am not yet fully convinced that this method is wise: thorough cleaning is always necessary, but in addition it seems to me that some fumigation is also required, especially following dangerous diseases like scarlet fever and diphtheria.

DISINFECTION OF THE PATIENT AND NURSE

The patient should receive two baths before he is allowed to mingle with the rest of the family. He—hair and all—should be scrubbed with warm water and soap and then washed in a solution of warm bichlorid of mercury, 1-5,000, or of carbolic acid, 1-50. He should be carried into a well-aired room and then dressed in perfectly clean clothing. The nurse should take similar baths and precautions as to her hair and apparel before mingling with the family again.

THE SICK CHILD'S TOILET

Strange as it may seem, there are still some persons who think a sick child should not be bathed. Many times mothers have said to me, "I have not bathed the baby today, as he seemed too sick." The restless, crying baby, uncomfortable in a mass of wrinkled clothing, fully substantiates the mother's statement. While it is often not advisable to give a sick baby a tub bath, the sponge bath in bed should seldom or never be omitted.

Unless expressly ordered not to do so by the attending physician, the mother or nurse should give every sick child a full sponge bath at least once, and generally twice, daily. This may be done under cover of a blanket, working deftly and quickly so as not to tire the child, and with no exposure whatever. The baby should be gently rolled from side to side and not lifted if he is very ill; all parts of the body may be reached in this manner. A little alcohol may be added to the tepid water if the child is feverish

or hot, and but little soap should be used and this rinsed off with a fresh wash cloth. One arm and one leg should be bathed at a time and then gently dried. Patting gently with a soft towel is better than rubbing in the process of drying the child.

The eyes should be bathed with clean boiled water or a solution of boric acid, the ears and nose gently cleaned with a swab of soft cotton on the end of a wooden toothpick, dipped in warm water. If there are hardened secretions in the nose use a little olive oil on the cotton swab or a little liquid albolene.

The mouth should receive the greatest care. For a baby under one year of age a piece of cotton firmly twisted on the mother's little finger should be dipped into boric acid solution, and the entire inside of the mouth gently and thoroughly washed at least twice daily. For an older child a soft toothbrush will be needed; this may be dipped in boric acid solution or equal parts of borolyptol and water, or if all the teeth are cut, a powder, such as precipitated chalk, may be needed. All the teeth should be carefully brushed and the mouth then rinsed with the mild anti-septic solution—boric acid or borolyptol. If the child cannot rinse his mouth, the mother should gently spray it with an atomizer.

The nails of fingers and toes should be kept clean and cut when needed. The hair should receive careful attention; otherwise it is apt to become matted and be very uncomfortable. If too weak to sit up, the child may be turned first on one side and then on the other while the hair is being brushed and braided. Arranging in two braids, so that one will be on either side, is most comfort-

able for children who have enough hair to braid. It should be parted in front and brushed off the forehead. Washing the hair is a more difficult matter, but it may be accomplished lying down if necessary. A rubber sheet should be spread over the pillow and if the hair is long enough the basin of warm soapy water may be held so that the hair falls into it, the scalp may be washed with soap and water and then rinsed with a fresh cloth. It should then be rubbed with warmed towels; if in summer it may be fanned. If the illness is not expected to last more than a week or two the hair-washing may be omitted until the child is able to be up.

Rigid cleanliness in all details of the toilet and of the crib or bed make all the difference in the world in the comfort of the sick child. By quick and deft handling no harm whatever is done by a thorough toilet every day.

CLOTHING FOR THE SICK CHILD

A child sufficiently sick to be in bed should be clothed so that he may be cared for easily and yet be perfectly comfortable. For this reason it is usually better to have nightdresses which may be slipped over the head or down over the feet without handling the child as much as night-drawers or pajamas would necessitate. A very sick child need not be raised at all while his clothing is being changed if the shirt opens all the way down the front and night-dresses are worn. For an older boy nightshirts are best. In cool weather the band, shirt and nightdress should be of medium-weight wool, mixed with silk or cotton. The band will be needed until the child is three years old; a

child over two years of age may wear the band and flannel nightdress or a heavy Canton or outing flannel nightdress and omit the shirt while he is in bed; when he is able to sit up a flannel sack should be put on. The kimono sacks and wrappers are in favor because of the loose sleeves, but these often let in a great deal of air and cause the mother to wonder why the child's hands are so cold. I prefer a snugly fitting sack of knitted wool like a sweater, that opens all the way down the front and is light in weight but warm. If the wrists are well protected the hands are more apt to remain warm.

Long woolen stockings should be kept on the child's legs if the weather is cool—cold feet often prevent sleep. A baby under two years of age may wear the long envelope nightdresses which have a flap which turns up at the bottom, buttoning over like an envelope. They may be easily pushed up to change or even to sponge the child when it is considered best not to move him about much.

In summer it is necessary to take all possible care to keep the child cool while in bed. A thin lawn or muslin nightdress with a very thin silk and wool band are usually all the clothing needed besides the diaper, for a baby under two years old. No matter how warm it is the abdomen of a young child must be kept at a uniform temperature as much as possible, for here lies the key to a good digestion.

When the child is able to be up part of the day, little knit or felt bedroom slippers and a warm wrapper in winter or a lawn one in summer will be needed in addition to the underwear usually worn.

AMUSEMENTS FOR THE SICK CHILD

While it is always best to let a well child amuse himself, it is often advisable to entertain a sick or convalescent child for a short time daily. This does not mean, however, that he should be humored and spoiled into exacting entertainment from those who have the care of him; it should be done rather as a reward for good behavior.

One thing at a time and everything else put out of sight, is the best plan to follow in amusing a sick child; in this way he does not grow tired or confused and the toys preserve their freshness and attractiveness. Woolly animals or ones with fur collect dust and germs; paper toys that may be burned with no considerable loss, wooden and rubber articles that may be washed off, are by far the best articles to have in the sickroom. Of course a little girl may have her dolls, but they should not be too valuable to be destroyed later if the disease be a contagious one.

The making of paper flowers is a pleasant occupation for sick children over five years of age; younger children will like dolls, animals and little toy villages cut out for them, or they may like to assist, using a pair of blunt scissors. A fox hunt is usually much enjoyed. The hounds, fox, and horses, with their riders, the fences over which they jump, may all be cut out of stiff paper and set up in little grooved pieces of wood on the bed table. If done a little at a time this game will cover several days.

Scrapbooks and dollhouses made in a blank book by

cutting out different articles from old magazines and furnishing each room of the paperdoll's house, is also a fine amusement and one that may be made to last weeks at a time.

The picture stamps that are now so popular will also be much admired by the little sick child. This is easy work and the child may be given a moist paint brush to wet the back of the stamps and paste them in the little albums arranged for this purpose.

Transparent slates, crayons and paint boxes, as well as many kindergarten gifts and occupations are all helpful in whiling away the tedious hours for the convalescent child.

A little sick boy whom I knew was made very happy by a "surprise box." In this pasteboard box little inexpensive presents—five or ten cents—were wrapped in bright tissue paper and tied with bright ribbons. Each package was marked with the date on which it was to be opened, one present for each day of the time he was confined to his room. It proved to be something to look forward to and helped to make time pass very pleasantly.

Reading to sick children is also a very pleasant occupation, but it should not be continued too long at a time, as the child's brain may tire, in spite of his urgent appeal for more.

A bed rest on which pillows may be placed saves the child's strength very much when starting to sit up after a long illness. If there is none in the house a little nursery chair may be used; it should be turned upside down, the pillows resting against the back of it. This makes a com-

fortable inclined support for the little back of the child as he partially sits up in bed.

DISCIPLINE OF THE SICK CHILD

If the child has been taught to obey when well, the mother or nurse will have very little trouble with him when ill. Because he is sick the child should never be humored or overindulged; very gently but firmly should he be managed. The child will take very kindly to his bed if he is handled in the right way and not made to feel it a great hardship to stay there.

Do not tell the child what is not true—if you do he will never trust you again. Never frighten him with threats of the doctor; he should be taught that the doctor is his best friend when he is ill and means only to help him get well.

Children who have been well brought up and obey easily get well much more rapidly than those who rebel at everything done for them. Constant fighting to get things done will exhaust the child and send up the temperature.

THE FEEDING OF SICK CHILDREN

In preparing food for the sick child the greatest care must be observed. Food that is intended to be served warm must be really warm and not cool, while food that is ordered cold must be very cold and not lukewarm. By the use of a hot-water plate the food may be kept warm while it is being eaten. A nursery ice box kept near the sickroom upstairs will save many steps and be very useful

in keeping Vichy, milk, etc., at the required temperature. A small nursery ice cream freezer that will make half a pint of ice cream will be found valuable. If the child is having a long illness a pretty little set of china for his exclusive use will be much appreciated. The sick child's meals should be served very daintily, for it is permissible to coax a sick child, when a well child should not be coaxed or bribed in any manner, but made to obey because it is best.

A bed table for the meals, and later on for toys, will be found very useful.

Food for each special disease will of course be ordered by the attending physician, but a few recipes that are used in many diseases may well be given here. For more detailed recipes, the book called "Practical Dietetics" with reference to diet in disease, by Alida Frances Pattee, will be found very helpful.

The table on page 14 may also be used as a guide for feeding breast-fed babies.

There is no real "average" baby. Babies differ when sick as much as when well. The age limits given here for strength of food, intervals of feeding and quantities at each meal are only approximate. Each child must be closely watched and studied, his food being increased or decreased according to his special needs.

Whenever possible, the mother should place her baby under the care of a good physician and let him guide the feeding, but when this is not possible, the methods given here may be tried. They have been highly successful with thousands of babies.

INTERVALS OF FEEDING AND QUANTITIES ALLOWED FOR BABIES
DURING THE FIRST YEAR

Age	Number of meals during day. 6 or 7 A.M. to 9 or 10 P.M.	Interval between meals by day	Number of night meals. 9 or 10 P.M. to 6 or 7 A.M.	Amount of one meal	Amount for 24 hours
First Month	8	2 hours	2 meals	1½-3 ounces	15-30 ounces
2nd Month	7	2½-3 hours	1 meal	2½-4 ounces	20-32 ounces
3d and 4th Month	6	3 hours	1 meal	3½-5 ounces	24½-35 ounces
5th and 6th Month	6	3 hours	0	4-6 ounces	24-36 ounces
7th, 8th, 9th Month	6	3 hours	0	6-7 ounces	36-42 ounces
10th, 11th, 12th Month	5	3½-4 hours	0	6-8 ounces	30-40 ounces

DIRECTIONS FOR PREPARING THE FOOD

All utensils for preparing a baby's food should be kept separate from other household articles of this kind; even the towels used in wiping the baby's dishes should be kept for this use exclusively.

It will help much if a regular glass graduate is used to measure the ingredients; nursing bottles with ounces marked on them are apt to vary considerably. A clean

pitcher, several spoons, a glass funnel, a double boiler and a little cream dipper, to measure the top milk if this is to be used, or to measure sugar in either set of formulas, are needed. The usual cream dipper holds just one ounce of fluid. If impossible to measure in articles holding just an ounce, then two tablespoonfuls may be counted as one.



FIG. 1.—GLASS GRADUATE. (Courtesy of Whitall Tatum Co., New York.)

ounce of fluid, but this is not nearly so accurate. Two scant dipperfuls of milk sugar may be considered as one ounce or three even tablespoonfuls.

The quality of milk to be given to the baby is of great importance. It should come from a herd of tuberculin-tested cows—mixed grade cows are best. Milk from fancy breeds or Jersey cows is seldom used with success in feeding babies; it is apt to contain too much fat. Milk that is produced under the supervision of a medical board should be used if it can be obtained. This is called "*certified milk*" and contains only a certain number of bacteria, whereas ordinary milk may contain so many bacilli that it is really unfit for a baby's use. It is very seldom neces-

sary to pasteurize certified milk, and for this reason alone it is much to be desired. Raw, clean milk is best for babies.

The milk should be kept in the original glass bottles in which it is brought to the house and on ice until it is time to prepare the food for the day; it should then be poured into a sterilized pitcher and well mixed, if the whole milk formulas are to be used. The entire quantity of food needed for twenty-four hours should be prepared at one time, the amount for each meal should be poured into a nursing bottle, having as many bottles as there are meals in twenty-four hours. The barley water or other cereal water or boiled water should be prepared first and the quantity needed for the special formula should be measured; then the given amount of sugar should be dissolved in this hot gruel or water and well stirred and strained. This should then be cooled to about 98° F. or lukewarm; then the milk and lime water should be well stirred in, the food bottled and tightly corked with clean cotton stoppers, and the bottles placed in a wire rack in a deep pan of cold water until the food is thoroughly and *quickly* chilled. They should then be placed beside the ice until required for a meal, when the bottle needed for that meal may be warmed by standing it in hot water until the food is 98° F. The temperature will easily be ascertained by dropping a little of the food on the pulse at the wrist. It should feel just lukewarm. If the baby can have a small ice box for his own use it will be much better than keeping his milk in the household refrigerator. If it is not possible to obtain ice, the food may be kept in a cold room if it can be kept below 50° F.

All bottles and devices intended to keep a baby's food warm, as for a night feeding, etc., are positively harmful and must never be used. Bacteria multiply rapidly in warm milk and grave disturbances of digestion thus arise.

THE CARE OF BOTTLES AND NIPPLES

Plain round bottles with ounces marked on them are best; it is always well to have one dozen bottles in the house. If any of the baby's food is left at a meal it must be thrown away—never should it be warmed up for another meal.

The bottle should be rinsed in cold water as soon as the child has finished feeding. It should then be filled with cold water and a pinch of bicarbonate of soda or borax added. It may stand until the whole number for twenty-four hours has accumulated; they can then be attended to at the same time. Just before making up the food for the day the bottles should be thoroughly washed in hot water and soapsuds and cleaned inside with a bottle brush, then carefully rinsed with cold water and boiled for twenty minutes. They are now ready to fill with the new day's supply of food. If it is necessary to leave them a few minutes before filling with the food they should be placed on wooden pegs, neck, or mouth, downward and covered with a clean towel.

The rubber nipples also require great care. Plain black rubber nipples having one small hole are the best kind. Non-collapsible nipples are very difficult to find. Nipples having any device on the inside that will collect germs should not be used, nor should long rubber tubes attached

to the nipples and put into the bottles; it is not possible to keep these clean enough. As soon as the baby finishes a meal the nipple should *at once* be rinsed with cold water and placed in a covered cup containing boric acid solution (one teaspoonful of the boric acid to one pint of boiled water) or into boiled water containing a pinch of borax. New nipples should be boiled for five minutes, but it is not best to repeat this daily, as it softens the rubber. Once daily all the nipples should be turned inside out and scrubbed with a brush in hot water and soapsuds; they should then be rinsed in cold water and returned to a cup of freshly prepared boric acid or borax water and covered.

The hole in the nipple should never be large enough to allow the food to run through it in a stream; it should be just large enough to permit it to drop rapidly through it when the bottle is inverted. If one cannot obtain nipples with a hole small enough, then blind nipples should be bought and the holes put in at home by heating a cambric needle and burning the correct sized hole in the nipple. Several nipples should be used daily, but it is not necessary to have a fresh one for each meal.

FOOD FORMULAS FOR BOTTLE-FED BABIES

WHOLE MILK MIXTURES

For babies who do not digest fat or cream well the whole milk formulas are usually best; when these are used it is generally better to use a cereal gruel as the diluent in place of boiled water. This helps to soften

the curd in the milk as well as add nourishment to the food.

A baby with weak digestion or any acute illness will have to be given a weaker formula than the average baby for a given age. Therefore, it may help the mother to know what the so-called "average" healthy baby is usually able to digest in order that she may better judge about weakening the food for the sick baby. The following formulas are those which often agree with a baby in normal health of a given age.

Malt sugar, milk sugar or cane sugar may be used, according to the digestion of the child. It has been thought that malt sugar ferments less easily and is more readily absorbed than milk or cane sugar; this is no doubt true in the case of many infants, but others do just as well or even better on milk or cane sugar. The same is true about using lime water or bicarbonate of soda as the antacid in the formulas. To some babies lime water is constipating while to others it is not so; if it is found constipating it may be omitted from the formulas and one-quarter of a teaspoonful of bicarbonate of soda used for the twenty-four hours supply of food, the required amount of diluent being made up by adding the same amount of gruel for the lime water which is subtracted from the formulas. If the child is very much constipated it may be necessary to use from one to two teaspoonsfuls of milk of magnesia in the formulas as the antacid (*see page 133*).

Goat's milk has been tried by some as a substitute for cow's milk. Personally I have not found it helpful in feeding babies. If it has to be used, however, it may be diluted very much, as in the case of cow's milk.

*Whole or Plain Milk Formulas**First Month*

	Oz.
Cow's milk.....	6
Barley water.....	23
Lime water.....	1
Milk or malt sugar.....	1½
Or else cane sugar.....	½

Second Month

	Oz.
Cow's milk.....	10
Barley water.....	21
Lime water.....	1
Milk or malt sugar.....	1
Or else cane sugar.....	½

Third and Fourth Months

	Oz.
Cow's milk.....	15
Barley water.....	20
Lime water.....	1
Milk or malt sugar.....	1½
Or else cane sugar.....	½

Fifth and Sixth Months

	Oz.
Cow's milk.....	18
Barley water.....	17
Lime water.....	1
Milk or malt sugar.....	1½
Or else cane sugar.....	½

Seventh, Eighth and Ninth Months

	Oz.
Cow's milk.....	26
Barley water.....	15
Lime water.....	1
Milk or malt sugar.....	1½
Or else cane sugar.....	½

Tenth, Eleventh and Twelfth Months

	Oz.
Cow's milk.....	32
Barley water.....	7
Lime water.....	1
Milk or malt sugar.....	1
Or else cane sugar.....	¼

For quantities and intervals of feeding, see Table, page 14.

Any one of the cereal gruels may be substituted for the barley water in these formulas (see page 25), oatmeal gruel often being used to relieve a tendency to constipation. Rice water may be well borne if there is slight starch indigestion when trying barley or wheat gruel.

If impossible for a baby to digest gruels, plain boiled water may be used as the diluent.

When the baby is in his twelfth month less and less of the diluent should be used until whole, undiluted milk is reached, the lime water and sugar being gradually decreased also.

TOP MILK MIXTURES

Premature babies and babies who cannot digest the curd of milk do better on what is known as "*top milk mixtures*." It is seldom thought best nowadays to use a richer milk than is obtained from dipping off the top half from a quart bottle of average certified milk.

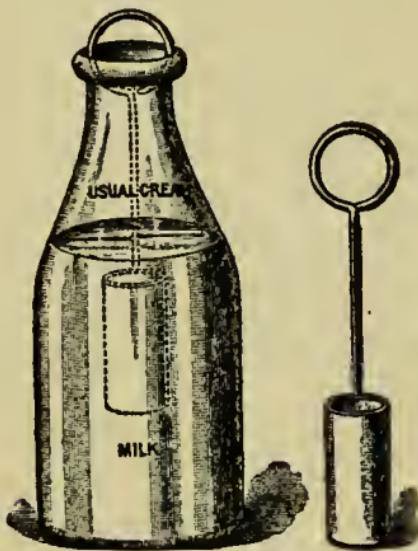


FIG. 2.—CHAPIN'S DIPPER FOR REMOVING THE UPPER LAYERS OF MILK. (After Holt's "Diseases of Infancy and Childhood.")

A small dipper may be obtained for removing the top of the quart bottle of milk. The entire sixteen ounces should be dipped off unless otherwise ordered by the doctor, and the required amount of milk in the formulas taken from this top sixteen ounces, or dipperfuls, which have been removed. Never make the mistake of taking off from the top of the bottle of milk only just enough milk to be

used in the formulas because if this is done it will give an entirely different percentage of fat in the mixture. For example if the formula calls for six ounces of top milk, do not take off *only* these six ounces, but remove the *entire* sixteen ounces of top milk and then take the six ounces required in the formula from this.

When the top milk mixtures are used it is often best to use boiled water for the diluent until the baby is at least three or four months old. This may be done much longer if the baby has starch indigestion. Here again each case differs and must be prescribed for by the doctor in charge. It is also correct to use any one of the different kinds of sugars with the top milk formulas and any one of the antacids, but as the top milk mixtures are apt to be a little more laxative in their nature than the whole milk mixtures it is generally found best to use lime water with these formulas rather than bicarbonate of soda or milk of magnesia.

Top Milk Formulas.

First Month.—With a spoon or tiny dipper remove the top sixteen ounces from a quart of bottled milk. Take six ounces of this top milk, add to it one ounce of lime water, twenty-three ounces of boiled water, in which one and one-half ounces of milk sugar have been dissolved, and mix all thoroughly. Pour two ounces of this mixture into each one of ten feeding-bottles and cork tightly with clean cotton.

By the time baby is three weeks old three ounces of this formula may be given and seven ounces of milk used in the formula instead of six.

Feed baby every two hours from six A.M. to ten P.M., but only once during the night between these hours.

Premature babies may be able to take only four ounces of

the top sixteen ounces, in place of the six ounces mentioned for this age. They need feeding more frequently and less at a time (*see page 88*).

Second Month.—Remove the top sixteen ounces from a quart-bottle of milk, using a small dipper for this purpose.

Take nine ounces of this top milk, add to it one ounce of lime water, twenty ounces of boiled water, in which one and one-half ounces of milk sugar have been dissolved, and mix well; pour three ounces of this mixture into each one of eight bottles.

The baby should be fed every two hours and a half from six A. M. to nine P. M.; then only once during the night between these hours.

When baby is six weeks old, if he seems hungry and is digesting the food perfectly two more ounces of milk may be added to the formula (making eleven ounces in place of nine) and four ounces given at each meal in place of three.

Third Month.—With a small dipper remove the top sixteen ounces from a quart-bottle of milk. Take thirteen ounces of this top milk, add to it one and one-half ounces of lime water, twenty and one-half ounces of boiled water in which one and one-half ounces of milk sugar have been dissolved, and mix well; pour four ounces of this mixture into each one of seven bottles.

The baby should now be fed every three hours from six A. M. until nine P. M. and once during the night between these hours.

When baby is ten weeks old, if the food is being digested well one more ounce of milk may be added to the formula (making fourteen ounces in place of thirteen) and four ounces and a half may be given at each meal.

Fourth Month.—With a small dipper remove the top sixteen ounces from a quart-bottle of milk, take fifteen ounces of this top milk, add to it two ounces of lime water, nineteen ounces of boiled water in which one and one-half ounces of milk sugar have been dissolved, and mix well; pour four and one-half ounces of this mixture into each one of six bottles.

The baby should be fed every three hours from six A. M. until

six P. M., then at ten P. M. and not again until six the next morning.

When baby is fourteen weeks old, if the food is being digested well five ounces may be given at each meal in place of four and a half.

Fifth Month.—With a small dipper remove the top sixteen ounces from a quart-bottle of milk, take the entire sixteen ounces of this top milk and add to it two ounces of lime water, 18 ounces of boiled water or barley water in which one and one-half ounces of milk sugar have been dissolved, mix well, and pour five ounces of this mixture into each one of six bottles.

The baby should be fed every three hours from six A. M. until six P. M.; then at ten P. M., and not again until six the next morning. At the eighteenth week five ounces and a half may be given at each meal.

Sixth Month.—Remove with a tiny dipper eighteen ounces from the top of a quart-bottle of milk; add to this two ounces of lime water, sixteen ounces of boiled water or barley water in which one and one-half ounces of milk sugar have been dissolved; mix well and pour five and one-half ounces of this mixture into each one of six bottles.

The baby should be fed every three hours from six A. M. until six P. M., then at ten P. M., and not again until six the next morning.

If the food is being well digested and the baby seems hungry he may be given six ounces at each meal when he is twenty-two weeks old.

Seventh Month.—With a small dipper remove the top twenty-four ounces from one quart-bottle of milk, add to this two ounces of lime water, sixteen ounces of boiled water or barley water in which one and one-half ounces of milk sugar have been dissolved, and pour six ounces of this mixture into each one of six bottles.

The baby should be fed every three hours from six A. M. until six P. M., then at ten P. M. and not again until the next morning.

Six ounces and a half may be given at each meal if the food

is being well digested by the time the baby is twenty-six weeks old.

Eighth Month.—With a small dipper remove the top twenty-six ounces from a quart of bottled milk, add to this two ounces of lime water, sixteen ounces of boiled water or barley water in which are dissolved one and one-half ounces of milk sugar, and pour six and one-half ounces of this mixture into each one of six bottles.

The baby should be fed every three hours from six A. M. to six P. M., then at ten P. M. and not again until the next morning.

Seven ounces may be given at each meal if the food is being well digested, by the time the baby is thirty weeks old.

From this time on the baby should take whole or plain milk mixtures (*see page 20*).

If the attending physician thinks best, and the baby shows a peculiarity in not being able to digest proteins, the top sixteen ounces from each one of two quart-bottles of milk may be removed and mixed before the required amount in each formula is taken, when it is time to give the formula for the sixth month, and thereafter; this is very seldom necessary, however. It is usually better at that age to add more protein, little by little, by taking milk lower down in the bottle until the whole milk formulas are reached.

RECIPES FOR FOOD

Barley and Oatmeal Gruels or Waters from the Flour.—Take one teaspoonful of barley flour,* or two of oatmeal flour, and mix into a smooth paste with a little cold water;

* The cereal or "Cereo" flours may be obtained from Cereo Co., Tappan, New York.

now stir this into one pint of boiling water and boil for fifteen minutes; add a pinch of salt and enough water to make up the pint (for some will have boiled away); then strain.

If the flours cannot be obtained use the grains. Take two tablespoonfuls of barley or three of oatmeal grain; soak in cold water over night; the next morning pour off this water and add one quart of fresh water and a pinch of salt, and boil steadily for four hours down to one pint, adding water as it boils away so that a pint will be obtained at the end of the time; then strain through muslin or a fine sieve. Gruels must be made fresh every day.

Rice water, arrowroot, and wheat water are made in the same way as the oatmeal gruel, only rice or wheat flours are taken in place of the oatmeal.

Cereal Jellies.—Barley, oat, rice, arrowroot, and wheat jellies are made as above also, but one *tablespoonful* of the flours is taken to six or eight ounces of water and boiled to the consistency of a jelly.

Farina Gruel.—One tablespoonful of farina should be mixed with one tablespoonful of cold water; then added to one cup of boiling water, stirring so it will not lump, and boiling thirty minutes; then add one cup of milk scalded, and a pinch of salt. To vary this a beaten egg may be added and the whole mixture then well beaten.

Dextrinized Gruels.—Three tablespoonfuls of barley, wheat or oat flours, one pint of water; boil twenty minutes. Add water to make up the pint when finished. When this is lukewarm (100° F.) add one teaspoonful of Cereo, stir well and strain. The Cereo changes the starch to dextrinized maltose.

This is often used to dilute milk in place of the plain gruels, or sometimes it is used alone. Less sugar is needed in the formulas when dextrinized gruels are used—generally about one-half the usual amount of sugar and sometimes even less. Babies who have starch indigestion are sometimes able to take gruels made in this manner.

Flour Ball.—One-quarter of a pound of wheat flour should be tied in a thick cloth and boiled in one quart of water for three hours. The cloth should then be removed and the flour exposed to the air, or it may be heated until hard. One tablespoonful of this flour ball grated may be put into half a pint of fresh milk and stirred over the fire until it comes to a boil, a pinch of salt and one tablespoonful of cold water should then be added. It should be served hot. It is often used for summer complaint, when milk may gradually be resumed.

Pasteurized Milk.—A regular pasteurizer may be bought for four dollars, but if one does not care to go to this expense the bottles of modified milk may be placed in a pot of cold water, which is then rapidly brought to the boiling point; the pot is then removed from the stove and the bottles allowed to remain in it for twenty minutes, when they are taken out and cooled as quickly as possible by allowing first warm and then cold water to run over the outside of the bottles. When quite cold they should be placed on ice until mealtime, when they may be heated as usual. If "Certified Milk" can be obtained it is rarely necessary to pasteurize it, even in summer.

Peptonized Milk.—One pint of fresh milk, five grains of the extract of pancreatis, fifteen grains of bicarbonate of soda. Rub the pancreatis and soda up in a tablespoon-

ful of the milk, then add it to the rest of the milk and shake well; place it in a glass jar and stand the jar in a pitcher of water, 110° F.; keep it at this temperature for two hours if the milk is to be completely peptonized, or as long as the doctor may direct. If only partially peptonized the milk should be scalded at the end of the given time.

Whey.—One quart of fresh milk, two teaspoonfuls of sugar, a pinch of salt, four teaspoonfuls of essence of pepsin or liquid rennet. When the milk is just lukewarm add the other ingredients, stir for a minute, then allow it to stand for about twenty minutes; break up the clot with a fork and strain the whey through muslin; if ordered, a little stimulant may be added to this.

Buttermilk.—This is often useful for babies who cannot digest the fat in cow's milk. In severe cases of chronic indigestion and in some cases of acute indigestion it is now frequently employed. Older children who are apt to have "bilious attacks" do well on buttermilk as a rule. It may be obtained now from many dairies or it may be prepared at home by the use of numerous tablets sold in drug stores and having directions for use with them. The milk should usually be skimmed before the tablets are added to it, unless otherwise specified by the physician in charge. Milk laboratories sell special milk of this nature called "*lactic acid*" milk. For older children the milk may be given plain, but for babies under one year of age it is usually better to dilute it one-third or sometimes one-half with boiled water or barley water.

Casein Milk or Protein Milk.—In this milk much of the sugar has been removed and the casein has been increased. It is used in cases of indigestion accompanied by thin or

sour stools; sometimes marasmus babies do well on this food.

One quart of whole milk is coagulated by rennet, as in the case of making whey (*see page 28*); all whey is then strained off and thrown away. The remaining curd is carefully rubbed through a fine wire sieve and one pint of buttermilk is added. Add enough water to make the whole mixture one quart.

Older children take this just as it is, but babies often have to have it diluted with equal parts of water, the water being gradually lessened. When the child's stools become more normal malt sugar may be added gradually to this mixture. Then plain milk mixtures should be tried one or two feedings per day, working back little by little until the baby can take his usual food. This milk is called "*Eiweiss*" milk by the Germans.

Keller's Malt Soup.—Three ounces of wheat flour, by volume, three and one-half ounces Loeflund's malt soup extract, sixteen ounces of water, sixteen ounces of whole milk. Mix the malt extract with warm water, carefully rub up the flour with the milk and strain. Next mix all the ingredients thoroughly and bring them to the boiling point slowly with constant stirring. For very young infants this may be then diluted with an equal amount of water; for older babies give as it is.

If fat indigestion is the trouble, then it is often best to use skimmed milk. The formula may be worked up or down according to the digestion of the individual child. Sometimes it is possible to gradually increase the milk to two-thirds or even three-fourths of the total amount of food.

In difficult feeding cases and often for marasmus babies this food is tried with more or less success.

Broths.—The important feature in making broths for sick children is to be sure that every particle of fat has been removed. Whenever it is possible the broths should be made the previous day and left on ice over night; then all fat will come to the surface and may be removed.

One pound of finely chopped mutton, beef, veal or chicken, with a little of the bone and as free from fat as possible, one pint of cold water and a pinch of salt, should be cooked for three or four hours over a slow fire down to half a pint. Water may be added from time to time if needed.

This should be strained through muslin, chilled in the ice box and then all fat removed. It may be warmed when fed or it may be given cold in the form of a jelly. It may be diluted with barley or rice water or it may have some barley or rice cooked in it for older children if desired.

Clam Broth.—Heat one and one-half cups of clam juice to boiling point, add a tiny pinch of bicarbonate of soda. Heat one-half cup of milk in another saucepan and add a pinch of bicarbonate of soda, a speck of butter and salt to this, bring to boiling point and then add the hot clam juice. Let it come to boil once. Then remove from fire and strain through very fine sieve or cheesecloth.

Beef Juice, Cold Process.—Take half a pound of round steak finely chopped, three ounces of cold water, a pinch of salt; place in a covered glass jar and stand on ice over night; the next morning pour it all into coarse muslin and twist well so that all the juice is squeezed out of the meat. It may be given warm or cold.

Beef Juice, Warm Process.—Very slightly broil half a pound steak cut thick; place in a lemon or meat press and squeeze all the juice out of it; add a pinch of salt. If given warm a cup containing the beef juice should be placed in another cup or pan of hot water and only slightly heated, for if heated too much it will curdle.

Potato Soup or Purée.—Take one quart of milk, six large potatoes, a stalk of celery, a tablespoonful of butter. Boil the pared potatoes for thirty minutes, then pour off the water and mash very fine and light; boil the celery in the milk, then add to the potatoes; salt a little, and rub through a strainer, serving at once.

Cream of Celery Soup.—Boil a head of celery in a pint of water for thirty or forty-five minutes; mix a tablespoonful of flour with two tablespoonfuls of cold milk and add to a pint of boiling milk; mash the celery in the water in which it was cooked and stir into the boiling milk; add a tablespoonful of butter and a pinch of salt; strain and serve at once.

Similar soups or purées may be made from peas, beans and spinach. These soups are excellent to give children in summer or when there is a tendency to rheumatism, and meats and animal broths must be used sparingly.

Albumin or Egg Water.—For vomiting babies and in some cases of diarrhea, this is often prescribed. It will not sustain life for any length of time but may tide a child over for a few hours until the stomach and bowels can bear other food.

The white of one fresh egg, half a pint of cold water and a pinch of salt should all be shaken together thoroughly. One teaspoonful of brandy may be added if the

child is weak. It may be fed from a nursing-bottle or spoon from one teaspoonful to two ounces at a time every hour or two.

Lime Water.—It is better to buy lime water already prepared in a drug store if possible, but when it must be made at home one teaspoonful of slaked lime should be added to one quart of boiled or distilled water. This should be placed in a corked bottle and shaken well several times during the first hour. It should then be left undisturbed for twenty-four hours so that all lime is allowed to settle; then the upper perfectly clear fluid should be most carefully poured or siphoned off. There should be no sediment in the part that is used.

Egg Nog.—Have the egg very cold. Separate the white and yolk; beat the yolk well; stir into this one teaspoonful of sugar; add a tiny pinch of salt and one-half cup of cold milk. Beat this all well together and add the white of the egg beaten to a stiff froth and gently mix, leaving some of the white on top. Flavor with a little nutmeg on top if this is liked, or add one teaspoonful of sherry wine, or the same amount of brandy if the child is taking a stimulant.

Milk Punch.—One cup of milk, one teaspoonful of sherry wine, brandy or rum, two teaspoonsfuls of sugar. Shake all well together in a fruit jar until frothy.

Coddled Egg.—Place the egg in enough boiling water to cover it, and immediately remove the water from the fire so that as it cools the egg cooks slowly and thoroughly; it should be left in the water for seven or eight minutes. When the egg is broken open the white should look like a jelly.

Scraped Beef Pulp.—One-half a pound of round steak should be scraped with the end of a tablespoon on both sides so that only the pulp and none of the fiber is obtained. This should be placed in a deep saucer and a pinch of salt and a speck of butter added to it. It should then be covered by another saucer and placed over the tea-kettle, the lid of which has been removed. It should be turned from time to time with a fork until it looks rare but is heated through. Usually less than five minutes will do it.

This may be used also for thin delicate beef sandwiches either entirely raw or heated through in this manner. It is easy to digest and good for anemic children as well as for many other diseases.

Irish Moss Blanc Mange.—This is a delicious food and dessert often ordered for a convalescent child from the age of one year upwards.

The moss may be gathered on many of the New England coasts and dried, or it may be bought in a drug store.

Soak one-quarter of a cup of Irish Moss in one and one-half cups of cold water for fifteen minutes; then remove and pick over and put into a double boiler with one and three-quarter cups of milk. It should be cooked for about twenty minutes or until a little dropped on a cold plate will thicken. Add one-quarter of a salt-spoon of salt, then strain and add one-third of a teaspoonful of Burnett's vanilla. Strain again and pour into cold, wet molds. It should then be thoroughly chilled and served with a little cream and sugar.

Orange Jelly.—One teaspoonful of granulated gelatin

should be soaked in one tablespoonful of cold water half an hour. Then add one tablespoonful of boiling water and dissolve it. Add two tablespoonfuls of sugar and three tablespoonfuls of orange juice and two teaspoonfuls of lemon juice and strain through a cloth and strainer into cold wet molds. Chill and serve with a little top milk or plain.

Wine Jelly.—Wine jelly is made in the same way as orange jelly but sherry wine is substituted for the orange juice.

Junket.—Warm a pint of fresh milk to 98 or 100 degrees Fahrenheit; add a teaspoonful of sugar, a pinch of salt and two teaspoonfuls of essence of pepsin, liquid rennet or a junket tablet; stir for a moment, and then allow it to stand until firmly clotted, which will take about twenty minutes at the temperature of the room; then place on ice.

Vanilla Ice Cream.—Mix the following ingredients well: one-half cup of milk, one-half cup of cream, three tablespoonfuls of sugar, one-half teaspoonful of Burnett's vanilla, and a pinch of salt. When the sugar is dissolved freeze in a small freezer.

Junket frozen makes an excellent ice cream for delicate or sick children.

Laxative Foods

Bran Gems.—Mix together one quart of bran, one pint of flour, one pint of milk, twelve tablespoonfuls of molasses, one tablespoonful of soda and a pinch of salt. Bake in gem-pans.

Prune Jelly.—Soak the prunes over night in cold water.

Next morning pour off this water and add enough fresh water to cover them; stew them slowly for an hour or two, adding water from time to time, then rub them through a sieve; add a tablespoonful of molasses to each pint of prune pulp and stew again for half an hour.

Graham Mush.—Cook half a pint of water, two tablespoonfuls of graham meal and a pinch of salt for one hour in a double boiler or a steamer; then add a pint of milk and scald or steam for five or ten minutes; strain and keep on ice until needed, when the mush may be warmed.

MILK AND EGG IDIOSYNCRASY

It is very seldom that a baby cannot take milk; usually if trouble is found it is due to the fact that the correct formula for that particular child has not been found. When it is found impossible to modify milk so that a baby can take it one will generally find that something wrong was given to the child at the start of his life and this has so upset him that he cannot be made to digest any form of milk.

Cases of pure milk idiosyncrasy are rare but possible. In such cases it is extremely difficult to decide what is best to do. Each baby differs in his ability to digest the different foods usually tried at such times.

If a good wet nurse can be obtained it is generally best to make an attempt to use breast milk first. If this cannot be taken, then protein milk or buttermilk may be tried next. Condensed milk mixed with a cereal gruel, Ramogen, and the various prepared foods are usually then given

a trial. But each thing should be given a fair trial and not given up at the first sign of disagreement.

Children who cannot take fresh cow's milk should be given fat-free broths, beef juice, and fruit juices early. They should also be given semisolids like well cooked cereals, milk toast, scraped beef, etc., much earlier than a normal child, so that the food which takes the place of the usual milk will not have to be given in as large a quantity as would otherwise be necessary and the baby can be gradually trained to do without it altogether.

There are also a few children who cannot digest eggs. Violent symptoms of acute poisoning are seen almost as soon as an egg is taken. The child may vomit or his temperature may become elevated and bright red blotches break out all over him. When these symptoms are seen it is not worth while to persist in giving eggs. Broths, beef juice, and later meat and fish will have to be substituted. Sometimes this idiosyncrasy is outgrown in later life.

CHAPTER II

PECULIARITIES OF DISEASE IN CHILDREN AND SPECIAL METHODS OF TREATMENT

IN taking care of a sick child one has to depend largely on what can be personally observed. The infant and young child cannot locate pain, and even if they do it is often referred to the wrong place. Keen observation on the part of the mother or nurse is therefore essential to the successful nursing of the sick child.

Some of the chief points to be watched in caring for the sick child are the following:

1. *General Nutrition.* Is he gaining or losing flesh?
2. *The Expression.* Is he bright or dull and stupid? Is he fretful or peaceful? Is his face drawn as if in pain?
3. *Character of the Breathing.* Is it rapid or slow? Is it regular or jerky? Does he breathe with the mouth closed or open? Is the breathing noisy as from snoring, or does it rattle from mucus? Do the nostrils work when the child breathes as if it was very difficult to get his breath? Is there a cry of pain when a deep breath is drawn?
4. *The Nervous Condition.* Is the child restless and excitable or drowsy? How is the sleep, quiet or restless? Is there any muscular jerking or twitching?

5. *Favorite Position.* How does the child prefer to lie, stand, or sit?

6. *Character of the Color of the Skin, Especially of the Face and Extremities.* Is he pale, blue, flushed, or are the lips cracked as if from fever, or dry?

7. *Condition of the Tongue.* Is it coated white, or brown, or unusually red? Is it dry, or is there more secretion of the saliva than usual?

8. *The Cry.* Is it sharp and piercing, as from acute pain, or is it simply a cry of the spoiled child which ceases the minute he gets what he wants?

Walking, rocking, etc., will not cause a sick child to cease crying if the pain is acute. The cry of meningitis is very sharp and different from almost any other cry. The fretful whine of marasmus is often characteristic of this disease. The feeble moan of a baby too weak to cry loud, the hoarse cry of babies with diseases of the throat—all are different and usually help in deciding wherein the trouble lies.

What we call the "*vital signs*" are the pulse, respiration and temperature. These signs in children differ very much from those observed in adults. They are much more easily upset on account of the highly strung and rapidly developing nervous system in babies and young children. Consequently a rapid pulse, or respiration and high fever in a baby need not cause as much alarm as the corresponding condition in adults, *if it is of short duration*. These symptoms continuing any length of time are of course very grave. If the temperature remains above 100° F., a doctor should always be called after twenty-four hours at least.

PULSE

To take the pulse of a baby or young child is often difficult and usually beyond the mother's sphere of work, but if necessary she may try to take it by placing her finger on the baby's wrist on the thumb side where the hand joins the arm and after waiting until she feels the regular beat she should begin to count, counting carefully for a full minute at least.

According to Holt, the normal pulse of a baby

From six to twelve months of age is 105 to 115 beats each minute.

From two to six years it is 90 to 105 beats each minute.

From seven to ten years it is 80 to 90 beats each minute.

From eleven to fourteen years, 75 to 85 beats each minute.

Anything very much higher or lower than these figures, if it continues more than twenty-four hours, should cause the mother to consult her doctor. If possible it is better to take the pulse and respiration when the child is asleep. Only a doctor or trained nurse can judge as to the regularity and other characteristic features of the pulse.

The Respiration

To count the respirations of a baby or child is often even more difficult than the pulse and must be done when asleep if possible. The mother may then very gently place her hand on the child's chest and begin the count. Holt gives the following figures for respiration during one minute while the child is asleep:

At birth.....	35 per minute
At the end of the first year.....	27 per minute
At two years.....	25 per minute
At six years.....	22 per minute
At twelve years.....	20 per minute

Other characteristics of the breathing must be left to the trained nurse and doctor. The mother can simply take the count if necessary and report any abnormality to the doctor if it continues more than twenty-four hours.

THE TEMPERATURE

This varies greatly and is much more easily affected by very slight causes than in the case of adults. A tem-



FIG. 3.—CLINICAL THERMOMETER. (Courtesy of Whitall Tatum Co., New York.)

perature that would be considered alarming in a grown person need cause no alarm at all in a baby *provided it does not continue*. A good clinical thermometer should be owned by every mother and kept clean ready for use. The rectal temperature is the best until the child is at least six years old. The thermometer should be greased with vaselin, then inserted into the rectum—about one inch usually—and left in place three minutes; it should then be withdrawn and carefully read and noted on paper. The rectal temperature is usually from one-half to one degree higher than that taken in the armpit or groin or even in the mouth. The thermometer should be cleaned

by wiping it off with a piece of cotton dipped in alcohol or bichlorid solution 1-1000.

At birth the temperature is usually that of the mother and soon becomes 99° F. It varies from 98½ to 99° throughout the greater part of infancy and childhood. Any temperature over 100° should be reported to a doctor if it continues more than twenty-four hours. There is usually a cause and it should be found if possible. Subnormal temperatures as 97° or lower should also be reported if they are continuous. Hot water bags packed about a baby may send the temperature up to quite a high degree.

THE URINE

The mother should have some idea as to the proper appearance and amount of urine passed normally in twenty-four hours, in order to determine when conditions are not normal. At birth the urine passed is very small in amount—two to eight ounces being the average. It is almost colorless. During the first week it often becomes dark in color and stains the napkin; this is due to uric acid. If the baby is given pure, boiled water—an ounce between each meal—the urine will soon become light or pale amber in color. Any fever will usually make the urine highly colored and less in amount.

A “brick dust” deposit is sometimes seen in the chamber or napkin of babies or young children; this usually indicates some form of indigestion, or a tendency to gout and rheumatism in a family that have had these diseases. In such cases it is well to cut off all sugar for a while, and as much starch as possible: that means in an infant,

diluting the milk with water, and leaving out the sugar in the formula, and in an older child, giving few, if any cereals, but milk, green vegetables, white meat of chicken and milk desserts without sugar, and some white fish. Plenty of water must be taken, and Vichy is often excellent.

The following table, taken from Dr. Holt's "Diseases of Infancy and Childhood," may be helpful:

AVERAGE DAILY QUANTITY OF URINE IN HEALTH

First twenty-four hours.....	0 to 2 ounces
Second twenty-four hours.....	$\frac{1}{3}$ to 3 ounces
Three to six days.....	3 to 8 ounces
Seven days to two months.....	5 to 13 ounces
Two to six months.....	7 to 16 ounces
Six months to two years.....	8 to 20 ounces
Two to five years.....	16 to 26 ounces
Five to eight years.....	20 to 40 ounces
Eight to fourteen years.....	32 to 48 ounces

Sugar, albumen, pus, blood and other substances occur at times in the urine of babies and children, but it is not possible for a mother to detect these things; all she can do is to collect a specimen for the doctor, and have him make a careful analysis. Many doctors, unfortunately, do not consider this necessary when they are treating babies, or do not think it is possible to get a specimen. A wise mother will insist upon having this done, if there is anything at all obscure in the illness of her child, and through the information obtained by the analysis, a disease that has heretofore been very little understood may suddenly become very clear and easy to treat.

To collect a specimen of urine in a baby who cannot make its wants known, in the case of a boy, a bottle may be placed inside of the diaper, the penis being placed in the bottle, and it may be held in place by bands of adhesive plaster or by tapes tied around the neck of the bottle and around the thighs of the baby. This bottle should be placed there just as the child is to be fed, as during and right after a meal he is more apt to pass urine. A soft rubber bag, if one can be obtained, is even better than a bottle for this purpose. There is also now made a special contrivance for collecting urine. In a little girl, a small cup may be placed inside the napkin and the napkin then pinned up tightly, or if this is not feasible, some perfectly clean absorbent cotton, or a clean, new sponge, may be placed there, and carefully watched, so that as soon as it is wet it may be removed and squeezed into a clean bottle. All receptacles for collecting urine must be absolutely clean and free from other substances, or the value of the test will be lost. A baby over six weeks old may be held on a small chamber every twenty minutes or half hour, until the urine is collected. A hot, damp cloth over the bladder, or if this fails, a cold one, will often cause a child to pass urine; this may always be tried when a child does not pass urine frequently enough.

Frequently the urine will have a very strong odor of ammonia; often such urine will blister the parts on which it falls. Recent investigations have shown that many times this is caused by diapers not being properly rinsed, and the urine that falls on them thus develops ammonia in a free state, and this causes the skin irritations. No soap should *ever* be left in diapers. Sometimes this am-

monia urine may point to the fact that the child is not getting enough water or that the stools passed are not normal, there being some indigestion also. At other times it is impossible to account for this condition.

ENURESIS OR INCONTINENCE OF URINE

When a child has reached his third year and still cannot control the passage of his urine he is said to have "incontinence of urine." He should go from eight to nine hours at night without wetting, and two or three hours in the day time; if he cannot do this something is wrong, and medical attention should be sought. Before this age it may be simply normal, or else due to bad training, if the child has to empty the bladder so often. Rewards are often more effectual than punishments in controlling this habit.

Causes.—Many times this incontinence of urine is simply a bad habit in children whose training has been neglected, but in well brought up children it is usually a form of nervousness, and often very difficult to overcome. Anemia, and any debilitated state of the system, tight foreskin or vaginitis, intestinal worms, too acid urine, or other abnormal conditions cause it. The incontinence may be only during the night, or possibly both day and night. Adenoids and enlarged tonsils are quite a frequent cause, and should always be thought of when a child has this difficulty.

Symptoms.—There is not a dribbling of the urine, but a complete emptying of the bladder in this disease. Much more frequently is there night incontinence than both day and night. The bed may be wet, not only once but several

times during the night. This condition may last for months or even years—it is often exceedingly difficult to cure.

Treatment.—This depends upon the cause. The urine should be examined by a doctor, and anything abnormal, if found, should be righted. If the foreskin is tight the child should be circumcised. If adenoids or enlarged tonsils are present they should be removed. Careful watch of the movements for worms should be kept. If the child is anemic and run down, he should be given nourishing food, taken away for a change of air if possible, kept out of doors as many hours as possible, and given an iron tonic. If the bed is wet at night, and the child able to control himself during the day, it will be advisable to try a dry supper. It would be well to give him a glass of milk at four P. M. and absolutely no fluid after that until the next morning.

For supper, a cereal with a little butter on it, bread and butter, and a little well stewed fruit with a cracker may be given. The child should be made to empty the bladder just before he gets into bed and should then be taken up at ten or eleven o'clock, when the parents retire, and made to use his chair again. In this way he is often able to hold the urine until five or six o'clock in the morning. In cases that fail to respond to any of the above treatments it will be necessary to put the child directly under a physician's care, and he will prescribe the drug best suited to the individual case.

A solution of atropin is many times prescribed, but a child while taking this must be watched by a doctor, or poisoning may result. One drop of the *solution* is usually

given three times a day, and the dose gradually increased, until the child is taking as many drops as he is years old; then the dose is gradually decreased. The child may flush very bright red while taking this solution, and if this occurs often the drug should be stopped or the dose at least diminished. Strychnin is another drug often prescribed. Great care is necessary in its administration, and no mother should attempt to give it on her own responsibility. Unlimited patience is necessary in treating this disease, and it may be necessary to continue the treatment for a year or more before the child is entirely cured. The mother must heartily coöperate with the physician, or else nothing can be accomplished.

THE ADMINISTRATION OF MEDICINE TO THE SICK CHILD

In the care of sick children medicine plays one of the least important parts. Good food, good nursing, and external treatment such as will be described, with change of climate when necessary, are many times more important than medicines but sometimes they are needed to aid nature rid the system of its poisons or to stimulate the overworked heart. When medicine is needed let the doctor prescribe it. Never run to a drug store and get what the druggist prescribes. A mother may give a dose of castor oil or some simple laxative medicine when needed but never is it advisable for her to prescribe anything else that must be taken into the child's stomach. Upsetting the stomach and intestines in the beginning of a serious illness makes the chance of recovery many times less

likely. These organs of digestion must be most carefully guarded.

It is usually best to give castor oil the first thing in the morning, when the stomach is empty; otherwise it should be given midway between meals. It will often be vomited if given on a full stomach. If the mother will go about giving the oil in a perfectly natural and business-like manner and not make the child think he is getting a noxious dose by pitying him he will often take it without the least trouble. The attitude of the mother has more to do with the successful nursing of the sick child than anyone is apt to realize. Castor oil may be given in a little orange juice to a child of one year or older or a little syrup of sarsaparilla may be used if the child objects very much to the dose as it is. Older children may take it in a little black coffee. Capsules of castor oil may be given if the child will swallow them easily, or specially flavored castor oil may sometimes be used if thought best. A piece of dry bread eaten after the oil will quickly rid the child of the unpleasant taste. It will be found helpful to either heat the spoon in which the oil is given or to give it *ice* cold. The dose of castor oil for a baby under one year of age is one teaspoonful. At one year it is two teaspoonsfuls, and after this time usually one tablespoonful. If one dose is vomited wait half an hour and then try it again. If the oil is placed far back on the tongue it will be swallowed more quickly and tasted less than if given in the front of the mouth.

Milk of magnesia is a safe and effectual laxative for a mother to give. It should be given in about equal parts of water, or better still, may be added to the bottle or

cup of milk if the child is taking milk. Under one year of age from one-half to one teaspoonful given once or twice daily will usually be the correct dose. At one year two teaspoonfuls are often needed and after this age usually a tablespoonful. Children differ much in their response to laxatives.

Many mothers look upon calomel as a home remedy to be given by themselves whenever they think it is necessary. Others so dread the thought of giving it at all they strongly object even when the family physician prescribes it. Babies and young children stand calomel well as a general thing, but it is not by any means a "home remedy." It is a form of mercury and may cause grave trouble if given unwisely, while in many cases it is the one drug that will quickly cure the child. Therefore, the mother should always consult her physician before giving a dose of calomel. If it is *impossible* to reach a doctor and the child is apt to need calomel, it is occasionally permissible for the mother to give a dose, if from previous experience she knows that it agreed with the child when it was *ordered by her doctor*. The frequent and habitual giving of calomel by the mother is to be prohibited. It should be given in small divided doses. The correct dose for a baby under two years of age is one-tenth of a grain every hour until ten doses have been taken. After this time a child can generally take one-fifth of a grain or one-quarter of a grain every hour for six doses. I have found that if it is given every hour instead of more frequently, as some physicians advise, it is far more apt to be retained by the child and be of more benefit. Babies under one year of age seldom need anything to carry off the calomel,

but after this age it is often advisable to give a dose of the citrate or milk of magnesia the morning after the calomel has been taken. It must pass through the bowels and not be allowed to accumulate in the system. Orange juice or acids should never be given the day the calomel is being administered.

Mothers should bear in mind never to give patent



FIG. 4.—MINIM GLASS. (Courtesy of Whitall Tatum Co., New York.)

medicines on the recommendation of neighbors: soothing syrups, etc., contain opium and other harmful drugs. "Teething powders" and tablets should be left absolutely alone. Babies have been known to go to sleep and never wake up from doses of patent medicines.

When a doctor orders medicine the mother should keep an exact record of the dose given and the time it was administered. The memory should not be relied upon, but a memorandum should be made and referred to. Extreme care should be exerted to drop the medicine with a medicine dropper if drops are ordered and not guess at it or try to drop it from the bottle itself. Drops and minims are quite different in many medicines and if a doctor orders medicine by minims the mother will need a special

glass with minims marked on it. It is always better to measure medicine in a graduated medicine glass than in a teaspoon or tablespoon. The mother must be careful to wash the glass or spoon well after each dose and if



FIG. 5.—MEDICINE GLASS. (Courtesy of Whitall Tatum Co., New York.)

the doctor leaves medicine in a glass it must be kept well covered. All medicines must be kept out of the reach of the children; serious accidents have happened by children swallowing drugs. The neck of a medicine bottle must be kept clean, pouring the dose out on the



FIG. 6.—MEDICINE DROPPER. (Courtesy of Whitall Tatum Co., New York.)

side opposite the label and wiping the neck of the bottle with a damp cloth. It is of the greatest importance to look at the label on the bottle before measuring the dose, after it is measured, and when putting the bottle back in place; then the mistake of giving the wrong medicine will be an impossibility.

In many cases young babies—before they have any teeth—may be given a dose of medicine by a medicine dropper more easily than from a spoon. The dropper should be placed far back in the mouth and then the bulb slowly squeezed, when the medicine will trickle down the throat. The nose may be held if the baby refuses to swallow, as this helps some.

As children do not as a rule take pills, tablets, or capsules well, it is usually necessary to crush these and give them in a little water or jelly, and follow this with a drink of water. A bitter medicine will often be taken very well if diluted by water.

If a medicine is ordered “after meals” usually fifteen to twenty minutes after is meant, and if “before meals” the same time should usually elapse unless otherwise stated by the doctor. The regularity with which medicine is given often means a great deal and the mother must see that the doctor’s orders are carried out *exactly* in this respect.

Some forms of iron and acids are apt to injure the teeth and should be given by means of a glass tube. Great care should be taken to see that the child does not bite the glass tube or medicine glass. It is safer to use a spoon or cup if possible to administer the dose after it has been measured in the glass.

It is seldom possible to make a child retain medicine by the rectum but in some cases it may be necessary to try this. The mother should receive special instructions from her doctor in each case. It is usually necessary to elevate the buttocks and hold the anus together for a few minutes after the dose has been given by rectum.

Medicines are also given by hypodermic needles but these are not for a mother to handle. The doctor or a trained nurse must administer such doses.

Giving candy after a dose of medicine is not to be encouraged.

METHODS OF TREATING DISEASE IN THE SICK CHILD

While there are times when the giving of suitable drugs will no doubt save the life of a sick child, they are to be thought of as a last resort and other means of treatment must be employed first in almost every case. As already stated, no mother should undertake to dose her own child, with the exception of castor oil and some mild laxatives. If the child is sufficiently ill to need other medicines he is sufficiently ill to have a doctor. Patent medicines should never be employed without the written orders of the family physician. There are other methods than drug giving that may be used in treating sick children. Some of these are the following: diet, baths, irrigations and enemata, stomach washing, applications of heat and cold, inhalations, sprays and douches, counterirritants, massage, electricity, change of climate.

DIET

Diet will be taken up in connection with special diseases.

BATHS

Baths for medicinal purposes are the hot bath, vapor bath, mustard bath, bran bath, tepid bath, salt water bath,

cold sponge bath, shower bath, soda bath, starch bath, alcohol sponge bath, and the cold tub bath.

Hot Bath.—This is most often used in cases of collapse or shock; sometimes for convulsions. The child should be put into the tub at a temperature of 100° and hot water gradually added until it reaches a temperature of 103° to 106°. A bath thermometer should be used. The mother should not depend on her own hand for this as this may cause burning of the child. If a thermometer is not available the water may be tested with the bare elbow. Usually cold cloths or an icecap should be kept on the child's head while the hot bath is being given; from five to ten minutes is generally enough to allow for this bath. The child should then be wrapped in a large towel inside of a warm dry blanket and placed in bed with a hot water bag to his feet. A little later the towel should be slipped out and the child allowed to lie in the warm blanket for an hour or so. If convulsions have been present or marked nervous symptoms the ice bag should be kept at the head.

Hot Air or Vapor Bath.—This is often used in cases of kidney disease where it is necessary to have the child perspire in order to open the pores of the skin and eliminate poisons.

The patient should be undressed and placed in his bed on a blanket; the bed clothing should be raised above his body ten or twelve inches by means of some support like barrel hoops or wicker arrangement which comes for this purpose, or a child's chair may be used. There must be this space like a tent to collect the vapor. The bed clothing should be pinned tightly around the neck so that the head alone is outside and no air allowed to

escape. A croup kettle having a long nozzle is then used to conduct steam under the covers. Great care must be taken to see that the child is not in too close contact with the steam as it issues directly from the kettle. This may be continued for twenty minutes or half an hour at a time and the child will usually perspire freely. The steam may be stopped then but the child kept under the blankets a while longer and only very gradually taken out of this vapor bath so that sudden chilling is prevented. He should be dressed in a warm nightdress and have a hot water bag at his feet when finally taken out of the vapor bath.

Mustard Bath.—Mix five tablespoonfuls of mustard with a little cold water to a smooth paste, then add this to four or five gallons of water at 100° F.; stir well so there shall be no lumps of mustard in the water.

The child should then be placed in this bath. The water may then be gradually made warmer by pouring in hot water until the temperature reaches 105°. The child's body should be covered up to the neck with this mustard water. The bath should be continued from five to ten minutes. If the child is convulsive an icecap or cold cloths should be kept at the head while this bath is being given. A bath thermometer should be used. The child's body should be wiped with a warm, dry towel when he is taken out of the bath and then he should lie undisturbed in a blanket for a while in the same manner as described for the hot bath.

Mustard baths may be used for convulsions, shock, collapse, or for any purpose where it is thought best to bring the blood quickly to the surface of the body.

Bran Bath.—This bath is most often given for skin irritations, like eczema, severe cases of chafing, etc. One quart of wheat bran is put into a cheesecloth bag and squeezed about in four or five gallons of water, the temperature of which is best at 95° to 98° F. The water should look milky or like a thin gruel. The baby should be kept in this bath three to five minutes, then wiped dry and dressed as usual.

Tepid Bath.—This bath should be given at a temperature of 95° to 100° F. It is the one usually employed during the first two years of life and may also be given to induce sleep or for a restless, nervous child as it is very soothing. The child should be kept in the tub only about three to five minutes, then gently wiped dry and clothed.

Salt Water Bath.—One tablespoonful of salt to each gallon of water 95° to 98° F. is used. The child should be kept in this bath five to ten minutes and the body constantly rubbed all the time he is in the bath.

It is useful for children who are poorly nourished or who need the gentle tonic effect that this bath gives. It may help those who perspire profusely.

Cold Sponge or Shower Bath.—This should be given only on the advice of a physician. Many children cannot stand it, and rarely those under two years of age. If the child gets blue this bath should not be repeated.

It should be given in the morning before breakfast and in a warm room. It is best to let the child stand in a foot tub containing enough warm water to cover the feet; then a bathroom spray should be used over the back and chest of the child, the water being from 40° to 60° F., and continued only half a minute; if one has no

spray a large sponge may be used. At once this should be followed by a brisk rubbing with a soft but coarse bath-towel. The whole body should be rosy red and the child in a glow. Otherwise the bath should not be repeated as it will do more harm than good.

For babies who are too young to stand and who need this cold bath for some special reason, a single dip in a tub of cold water temperature 50° to 60° F. may be used.

The bath is usually given for its tonic effect in delicate children or in the case of babies who do not cry well. The sharp cry usually given on being immersed in the cold water expands the lungs and promotes circulation; some think it helps to ward off colds.

Babies with atelectasis, or non-expansion of the lungs, are often given a hot bath first followed by the cold plunge, then the hot water dip, etc., for about three minutes at a time. It is best to end with the hot dip if the baby is very delicate.

Soda Bath.—This is usually best given as a sponge bath but the child may be placed in the tub if thought best.

One teaspoonful of bicarbonate of soda is added to each quart of tepid water 95° to 98° F., and the entire body sponged with a soft washcloth dipped in this water.

It is especially useful in cases of prickly heat and such skin irritations. It often induces quiet sleep if given at bedtime when the child is restless and irritable on a hot day. After this bath the body should be gently patted with a soft linen towel and a little pure talcum powder dusted on the irritated portions of the skin. Several of

these baths may be given during each twenty-four hours if they seem to soothe the child.

Starch Bath.—This is given in the same way and for the same purpose usually as the soda bath. One-half cupful of powdered laundry starch should be well mixed with the bathtub of water which should be from 95° to 98° F.

Alcohol Sponge Bath.—This is one of the most valuable means of reducing fever in babies and young children that we possess. It cools the body by evaporation and is of more value than all the medicines ever used for this purpose.

Eight ounces of alcohol is added to one quart of water at 95° to 98° F. The child is gently sponged with a soft cloth dipped in this solution; this may be continued about ten to fifteen minutes at a time. An icecap or cold cloths should be kept on the head while the bath is being given. It relieves restlessness as well as reduces fever and may be repeated every two or three hours if needed. A light blanket should then be thrown over the child and he should not be dressed for an hour or so at least if the fever is high.

Cold Tub Bath.—This is also used for reducing fever but I have not found it so generally beneficial as the sponge bath, as it is more exhausting.

The shock is too great if the child is put at once into very cold water; therefore, he should be put into the tub at 100° F. and very cold water or ice gradually added to the water until it reaches 85° or 80° F. The body should be constantly rubbed while the child is in this bath and the head should also be bathed with cold water. It

is usually continued from five to ten minutes according to the way the child stands it. At the end of the bath the child should be gently wiped with a soft towel and wrapped in a warm blanket. This bath should be given only when ordered by a doctor.

Mustard Foot Bath.—This is an old-fashioned remedy for a cold or chilling of any kind. It may be given in bed, as when used for the mustard pack, or if the child is not very ill he may sit up in a chair with his feet and legs in the deep foot tub of hot water and mustard, a large blanket enveloping both him and the tub. One tablespoonful of mustard to each gallon of water, the temperature of which is about 103° to 105°, is the usual proportion, and the feet should be left in from ten to fifteen minutes until they are quite red. They should then be well dried and the child placed in bed, a hot water bag at the feet.

PACKS

A pack is often given a sick baby or child in place of a sponge or bath, as it is sometimes less exhausting than a full bath and accomplishes the same purpose.

Cold Pack or Ice Pack.—Place a rubber sheet on the bed and on top of this an old blanket. Strip the child and roll him up in a sheet or large towel wrung out of water about 100° F.; each arm and leg should be wrapped separately. Now rub him with pieces of ice about as large as the fist, being careful to include the armpits and groins in the ice rubbing as the large vessels lie close to the surface here and cool the body more readily. An icecap or cloth wrung out of ice water should be kept

on the head during this rubbing. The rub may be continued for five to fifteen minutes according to the condition of the child.

If he becomes blue or shivers it must be stopped as the shock is too great. He may be left in the sheet for twenty minutes after the ice rubbing and covered with a blanket. At the end of this time his temperature should be taken and if it has dropped 2 degrees or more the child should be dressed in his night clothes and the wet blanket and sheet removed. If not, it may be well to try the rubbing once more before the child is taken out of the wet sheet. The doctor must give careful orders about this for each case. If the hands and feet become cold a hot water bag must be kept at the feet even though the temperature is high and an icecap is on the head. This pack is used in cases of pneumonia or any other disease where sponging with alcohol does not give the desired effect. It is often useful in nervous children who run a very high temperature when ill.

Mustard Pack.—A rubber sheet and then an old blanket is laid on the bed and the stripped child on these. One tablespoonful of mustard is dissolved in one quart of water 98° F. and a large towel or small crib sheet is dipped into this and wrapped around the child while it is still very wet. The child is then covered with a blanket and he is allowed to remain in this pack for ten or fifteen minutes, when he should be dried and dressed in his night clothing; the skin should look quite red when he is taken out of this pack.

This is given in cases of collapse or great prostration or sometimes in convulsions when it is thought best not

to disturb the child enough to put him in a bath. If given for convulsions it is also a good plan to place the feet and legs in a deep basin of water at 102° to 103° F. in which one tablespoonful of mustard to a gallon of the water has been thoroughly dissolved; this will quickly bring the blood away from the brain. An icecap should be kept at the head if the mustard pack is being given for this purpose.

Hot Pack.—This is given as in the case of the mustard pack, but the towel or sheet is wrung from plain hot water at a temperature of 100° to 108° F. and the child then rolled in a blanket until he perspires freely. The hot towels or sheets may be changed for fresh hot ones every fifteen or twenty minutes if perspiration is not induced at first. It is often used in cases of kidney disease or uremia.

ICECAP

This is a valuable aid in reducing fever and quieting a child as well as relieving acute congestion of certain parts, like the portion of the abdomen in which lies the appendix.

The icecap must be carefully watched and the ice renewed in it as it has melted. The ice should be in small pieces; it may be wrapped in a strong cloth and pounded up with a hammer or broken with a large needle. It should be filled about half full with the ice and then all the air possible pressed out of the bag before the top is securely screwed on. If the screw-cap kind cannot be had, then a rubber bag which has to be tied around the top may have to be used. Care must be taken that there

are no leakages in the top or holes in the other parts of the bag. A baby lying in a pool of water from a leaking icecap is liable to be made worse instead of better by



FIG. 7.—ICECAP. (Courtesy of Whitall Tatum Co., New York.)

the treatment. The bag should be wrapped in a piece of gauze or a thin towel before placing on the child.

HOT WATER BAG

The greatest care must be observed when using hot water bags or bottles for a baby or young child. The top of the bag must fit tightly so that it will be impossible for a drop of water to ooze out and the bag must be hot without being hot enough to burn the baby. The bag should be filled only about three-quarters full of the hot water and then all air pressed out before the cap is put on; it will then lie flat. It should be wrapped in a flannel bag of its own or in a small blanket or towel before it is placed in the crib or bed.

It is usually better to have the bag a little distance away from the feet or the body of the baby unless some special

orders are given by the doctor. The warmth will radiate from the bag and warm the child without danger of burning. If it is advisable to keep the bed constantly warm at least two hot water bags will be needed so that when one is cold the other is ready to slip right into its place without waiting.

HOT FOMENTATIONS OR HOT STUPES

These are not used very much in treating infants and young children but some doctors like them for certain cases and the mother should know how to apply them if she is nursing her child.

White flannel or a piece of heavy old wool blanket is the best material to use. A piece of this flannel the proper size for the part it is to cover should be placed in the middle of a towel and dipped in a basin of boiling water for a few minutes. When well saturated with the boiling water the two ends of the towel are twisted in opposite directions so as to wring out the flannel folded inside of it without burning one's hands; this is then carried in the towel to the child, and the flannel shaken out and held to the mother's cheek just long enough to test the heat, as the child's skin is so delicate that burning is likely to take place unless great care is taken. The flannel is then placed on the part and covered with a piece of dry flannel and oil silk or some rubber material in order to prevent wetting the clothing, and a bandage is then applied to keep it in position. As soon as this cools a fresh hot one must be ready to slip in place.

If the doctor orders a turpentine stupe or a laudanum

stupes the same method is followed with the addition that after the flannel is wrung out, from fifteen to twenty drops of laudanum or turpentine is sprinkled on the hot flannel. These stupes must be ordered by a doctor.

MUSTARD PASTE

This is one of the most valuable remedies we have in infancy and childhood; it is called a "counterirritant." Camphorated oil, mentholatum, capsicum vaselin, and the above-named stupes are also classed as counterirritants, but I never employ them when a mustard paste can be had; they are far inferior to the paste. The mustard leaves already put up may be used in an emergency, as when traveling, etc., but are not nearly so beneficial as the fresh homemade mustard paste.

To make this paste take one tablespoonful of mustard and five tablespoonfuls of flour; mix well with enough lukewarm water to form a batter, taking care that there are no lumps. Spread this between two layers of thin muslin or thick cheesecloth; fold in the edges so it is not possible for the mustard to leak onto the child, and apply it to the chest or part for which it is ordered. It usually takes from five to ten minutes for the skin to become well reddened; it should then be removed and a little olive oil or vaselin rubbed into the skin. For older children one tablespoonful of fresh mustard may be mixed with four tablespoonfuls of flour.

If this paste is used for pneumonia or bronchitis it is usually best to make it large enough to surround the entire chest, instead of making two pastes, one for back and the

other for front of the chest; the parts under the arms often do not receive the benefit of the paste otherwise. The paste may be used every three hours if it helps the child, a fresh paste being made each time. It will do the child more good than many bottles of cough medicines, as it relieves the congested parts without upsetting the stomach. Besides being valuable in bronchitis and pneumonia it often alleviates pain over the heart, and relieves violent vomiting if it is placed over the pit of the stomach about five minutes before the food is given.

Mothers with little children should never be without a can of fresh mustard in the house. If it is old and stale it will be much less effective.

DRY CUPS

This is another means of relieving acute congestion in pneumonia, bronchitis, or other pulmonary troubles. It is rarely used by the mother. A nurse or doctor must generally do this, and should always personally teach the mother to apply these cups at least once if it is really necessary for her to use them; therefore the method will not be described here. More harm than good would come of the incorrect use of cups. Wet cups are not used for young children.

POULTICES

These are of very little use for children; wet dressings and the mustard paste are much to be preferred.

The old time flaxseed poultice for bronchial and lung troubles should not be employed for children; it only adds weight to the already tired-out chest walls. If for

any special reason a doctor thinks best to use a flaxseed meal poultice the mother is usually the one who must prepare it and should remember to make it light. The water must be actually boiling and then the flaxseed meal stirred into this gradually until it is the consistency of mush and stiff enough to drop away from the spoon. It should then be taken from the fire and well beaten, no lumps being allowed to remain in it; this will make it light. The poultice is then spread evenly, half an inch in thickness on a piece of cheesecloth or thin muslin which is placed on a hot plate. The edges of the muslin must be turned in to prevent the poultice from leaking and another piece placed over the top of this, the edges being well turned under. It is then covered by a towel and carried to the child. The mother should hold it to her own face before applying it to the tender skin of the child. A flannel and oil silk of some rubberized material should cover the poultice and it should be held in place with a bandage or binder. Small poultices must be changed every hour or two, the larger ones every three hours. These should only be used when ordered by a physician.

ENEMATA

When it is necessary to empty the bowels quickly an enema or injection may be used; they should not be continued day after day, however, as the habit is soon formed and the baby will depend upon this aid. The amount of fluid given depends upon the age of the child: For a baby less than a year old from four to eight ounces of soap suds may be needed; older children usually re-

quire a pint or sometimes more. It should be given luke-warm and by means of a fountain syringe, or in the case of young infants a small bulb syringe may be used.

An olive oil enema may be used with benefit in the case of babies where the stools are hard and dry and

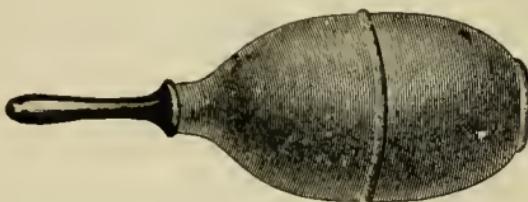


FIG. 8.—RECTAL SYRINGE. (Courtesy of Whitall Tatum Co., New York.)

difficult to pass. One to two ounces of olive oil with sometimes one teaspoonful of glycerin to each ounce of the oil will be found valuable. The tip of the syringe must always be well greased with vaselin or olive oil and great care not to injure the delicate membranes of the bowels must be used.

IRRIGATION OF THE BOWELS

This is a valuable aid in cleansing out the intestinal tract. To be of any real value it should be given with a soft rubber catheter having an eye or hole in the end and also one or two holes in the side of the catheter. The water will then flow into the intestines through the hole in the end and flow out again through the ones in the sides.

Very often the mistake is made of inserting the catheter

only an inch or two into the lower bowel; it should be gently worked up as far as it will go without force—usually eight or nine inches.

The catheter most often used is the No. 18 American scale. It is large enough and stiff enough to carry plenty of water and is not so apt to bend as a smaller or softer make. A very young baby may need a smaller sized catheter. This catheter is attached to a fountain syringe by means of the smallest tip that comes with the syringe, or better still a glass connecting tube. It is well greased with vaselin or oil and the syringe is hung about three feet above the child; it is usually filled with salt water—one teaspoonful of salt to each pint of boiled water is the correct proportion. From one to two quarts are generally needed. The temperature of the water when used may be from 60 to 104 or 105° according to the reason for the irrigation; usually about 98° F. is the best. If it is given to help reduce fever it may be used cold; if to stimulate a child who is cold it may be used hot. It is best given to the child on a table or other hard surface.

The child is placed on his back on a rubber sheet on the top of which is a pad or several folded diapers; his clothing is well drawn up under him and his legs are held up. The rubber sheet should drain into a large basin or tub so that the results of the irrigation may be observed; they should not be carelessly thrown away but saved to show the doctor when one is expected. If given in bed a bedpan may be used to catch the water, but the rubber sheet should be placed under the pan, for it is usually a very wet proceeding unless given very carefully and neatly. The water should be shut off at first but as soon as the catheter has

been passed about one or two inches into the rectum it may be turned on and will keep the catheter stiff while it is being gently worked up; very often it is possible to get it up the whole length. No force should be used; if it doubles up it should be removed, the water turned off, and tried again. The abdomen may be very gently kneaded at times.

When the water runs clear it is time to stop the irrigation as a rule, the water shut off and the catheter left in place but detached from the syringe. The abdomen being kneaded gently the water flows out of the catheter until the bowels are empty; then the catheter should be rapidly drawn out and the parts dried. If for any reason it is thought advisable to leave some salt solution in the intestines after the bowels have been irrigated then at the end of the washing about six to eight ounces of the pure salt solution may be allowed to flow into the bowel while the buttocks are elevated by a pillow. After this is done, the catheter is pinched and drawn quickly out while the buttocks are held together and kept elevated for twenty minutes or even longer, so that the salt solution may be absorbed.

This is helpful when the child is prostrated or having many stools in twenty-four hours and thus losing a great deal of water from the tissues. Some advocate this irrigation two or more times daily but I have found that it is usually too irritating to be done more than once in twenty-four hours. In a case of infected intestinal disease where the bowels are still full of the poisonous matter it is one of the best remedies we have, but if kept up too long or used too often in milder cases it is apt

to continue the passage of mucus rather than to relieve the conditions present.

STOMACH WASHING

This is used in cases of gastritis or severe vomiting or catarrh of the stomach; also to empty the stomach quickly when poisonous substances have been swallowed. It should be done by a trained nurse or a doctor and not by a mother; so it need not be described in detail here.

SUPPOSITORIES

These are often useful when the bowels must be helped a little and an enema is not thought advisable; they just start the bowel action as a rule. For very quick action a glycerin suppository is best but it should not be used often as it is too irritating; the small sized ones should be used for babies and young children. Sometimes they come in the form of a stick and may be inserted a short way and then withdrawn; others come small enough to be completely inserted into the rectum and then they are expelled with the fecal matter.

Gluten Suppositories.—The gluten suppositories made by the Health Food Company and sometimes called “entona” are to be preferred for frequent use as they do not irritate. They take longer to act—sometimes an hour or more. They are to be inserted completely into the rectum and it is better to cover them with a little vaselin.

Soap Suppositories.—The homemade soap stick is useful for training the baby to use his chair at a regular time each day. Pure white soap like Castile soap should be whittled

smoothly about the size of one's little finger and then covered with oil or vaselin and inserted into the rectum about an inch, just to give it the needed stimulus; it should then be withdrawn and the child held over the chair. Great care must be used not to injure the delicate lining of the intestines when employing any of these articles and as soon as possible their use should be discontinued.

Medicated Suppositories.—Medicated suppositories are sometimes ordered by the doctor for certain diseases but these are not very often used in infants or young children.

DOUCHES

The vaginal douche and the nasal douche are sometimes employed in infancy and childhood. The vaginal douche may be needed when a little girl has leukorrhea or gonorrhea. A saturated solution of boric acid, or any solution the doctor orders, should be placed in a fountain syringe and held about three feet above the child; it may be given on a bedpan or rubber sheet on a table. The smallest spray or nozzle that comes with the syringe should be used. The labia should be held open and the spray or douche allowed to flow over the parts and up as high as it will go naturally without any force until one pint or one quart has been used. The parts should then be carefully dried and powdered. Do not ever force the nozzle up into the delicate vagina.

Nasal Douche and Throat Douche.—In cases where the child cannot blow the nose to free it thoroughly, or in cases where the usual spray cannot reach, the nasal douche

may become necessary. It must be used with great care, as sometimes fluids are forced into the tubes running into the ear and considerable harm may be done. A fountain syringe with a very small tip or a hard rubber or glass syringe having a soft rubber tip may be used; if the fountain syringe is used it should be hung only one or two feet above the child.

The clothing should be covered by a rubber sheet, then by a towel, and if one owns a pus basin this should be



FIG. 9.—NASAL SYRINGE. (After Holt's "Diseases of Infancy and Childhood.")

held so as to catch the fluid as it comes back; if not, a large cup or plenty of gauze or cotton that can be burnt will do as a substitute. If the child is well enough it is better for him to sit up straight in the mother's or nurse's lap while this nasal douche is being given, with his head bent a little forward; if he is too ill to be taken from bed then he must be turned on his side and the head bent a little forward. Either a saturated solution of boric acid or a mild salt solution may be used in the douche.

Personally I do not recommend this method of treatment unless a trained nurse is at hand to give it. If the mother undertakes this a medical person should give her an object lesson first and someone will always have to assist her.

The throat and mouth douches are given the same way and are usually attended with considerable difficulty, but are sometimes needed. The long nozzled, hard rubber syringe is the best usually to employ for the mouth and throat douche as it does no harm if the child bites the hard tip and it also acts as a tongue depressor. In bad cases of stomatitis or ulcers in the mouth and throat and occasionally in diphtheria this treatment may be helpful.

SPRAYING THE NOSE AND THROAT

This may often be needed as children do not blow the nose well. For the nose I like a mild oil substance like liquid albolene; to this menthol, ichthyol, or any other

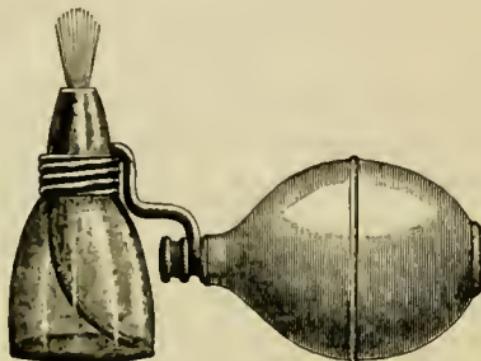


FIG. 10. ALBOLENE ATOMIZER. (After Holt's "Diseases of Infancy and Childhood.")

substance specially indicated may be added. An oil atomizer should be used, and if the mother goes about it in the right way and does not make the child think he is to be pitied there is very little trouble. The bulb should

be squeezed three or four times for each nostril and it may be used every three hours if it seems to help. In cases of acute cold or where there are dry crusts in the nostrils this treatment is quite beneficial.

The throat spray is a different kind of apparatus; usually it has a long metal or rubber nozzle. I like the metal kind best as it is not harmed by boiling and lasts longer.

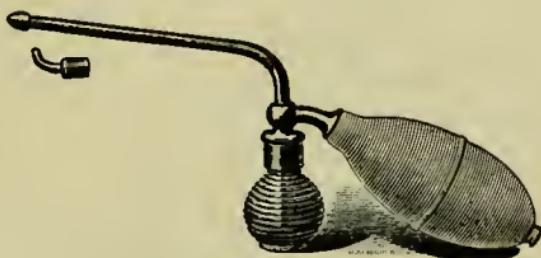


FIG. 11.—THROAT ATOMIZER. (Courtesy of Whitall Tatum Co., New York.)

Boric acid, bicarbonate of soda, or salt solution, may be used in the throat spray or any one of the mild disinfectants, like borolyptol, glycothymolin, etc. For a sore throat, or to use as a precaution on dusty and windy days, the throat spray is very useful; it is especially so when a child cannot gargle. If possible the fluid used should be expectorated but if not the little swallowed will usually do no harm if it is one of the above-mentioned solutions.

IRRIGATION OF THE EYE

It is usually best to use a special blunt or rounded-end eye dropper for this purpose; sometimes in mild eye afflictions pieces of cotton will answer. Always use separate

pieces of cotton for each eye and cover up one eye while the other one is being irrigated. A solution of boric acid, one teaspoonful to one pint of boiled water, is generally used for this purpose. The lids should be held gently opened with thumb and finger of one hand while the eye is flushed with the solution in the dropper or cotton.

IRRIGATION OF THE EAR

To syringe the ear a soft rubber bulb syringe is the only thing that is safe for a mother to use. A small pus basin or a cup may be held under the ear to catch the solution. The child should sit in someone's lap and have his head firmly held against that person's chest; the tip of the ear should then be drawn upward and backward a little so as to straighten out the canal; then warm boric acid solution, at a temperature of 100°—and made one teaspoonful to one pint of boiled water, should be used in the syringe. The tip of the syringe should be moved about so that all parts of the canal are reached and not held steadily in the center; the bulb should usually be filled two or three times. If the child is old enough to complain of being dizzy and this symptom is noted the syringing should then be stopped. After the ear is syringed it should be very carefully dried with cotton.

INHALATIONS

These are invaluable in treating infants and young children; whenever possible they should be tried first before medicines are given. In laryngitis, croup, bronchitis, pneumonia, and some other affections of the breath-

ing apparatus they are used a great deal by physicians who understand the treatment of children.

The most effectual way to give these inhalations is under

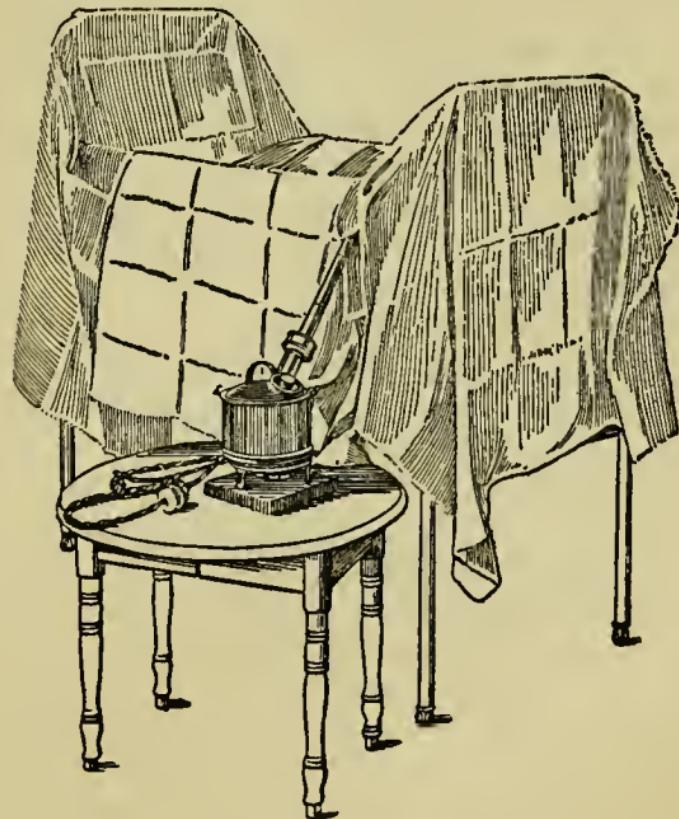


FIG. 12.—CRIB PREPARED FOR STEAM INHALATION. (After Kerley's "Short Talks with Young Mothers," published by G. P. Putnam's Sons, New York and London.)

a tent. A large sheet may be thrown over the crib or the child may lie on a bed under an open umbrella over which the sheet is draped to form a tent. A baby carriage with the hood or parasol up and a sheet draped over this is

often handy to use. This may be pushed right out into the kitchen and the inhalation given there if more convenient.

The best kind of steam inhaler to use is a regular croup kettle with a long nozzle, and in which there is a place to put a sponge on which any medicine prescribed may be dropped. If there is electricity in the house, the croup kettle may be most safely placed on an electric stove, but if not, a small gas stove or in cases of great need an alcohol or oil lamp or stove may be used. If the latter are employed the greatest care must be taken to sit by the child every minute the inhalation is being given and watch the lamp closely to see that the flame does not flare out and catch fire to the sheet. If the cook stove is a low one and nothing better can be had the kettle may be boiled on that.

When one cannot get a regular croup kettle then a cheap tea kettle from the five and ten cent store may be used and heavy paper or cardboard may be tied or fastened in some way onto the spout so as to elongate it sufficiently to reach under the sheet. If the baby is young his hands should be bound to his sides by fastening a diaper or towel loosely but securely around him, otherwise he may throw them directly in the way of the hot steam and become burnt. Never leave the child alone while the inhalation is being given.

If a regular croup kettle with a sponge for the medicine to be inhaled is used then a few drops of the fluid may be sprinkled on the damp sponge, but if there is no sponge attached then about one teaspoonful of the medication to one pint of boiling water is the general proportion.

Boiling water should be added constantly as the first boils away.

Compound tincture of benzoin is one of the most frequently used medicines for inhalations. Creosote, oil of pine needles, and eucalyptol are sometimes used, but if the mother is giving the inhalation without special orders from her doctor she had better keep to the benzoin.

The child may remain under the tent for from ten to twenty minutes according to the manner in which it affects him. If the relief is great the inhalations may be repeated every two or three hours. If not they should be given only two or three times daily. For severe croup cases, they may steadily be continued until the breathing is relieved. There are a few children who cannot seem to stand inhalations; if they become pale or blue or seem very weak then the inhalations must be stopped at once, but this is the great exception to the general rule.

A child of six years or older may sometimes be allowed to have the inhalations from a pitcher of boiling water held in the mother's lap or on a low table. A towel should be thrown over the child's head and over the pitcher also and he should open his mouth and inhale the steam for ten or fifteen minutes if possible. The kettle method is much to be preferred, however.

MASSAGE

In infants this is not used to any great extent. Cases of constipation may be helped by this sometimes, especially when used in connection with other methods of correcting the disease. The best method is to use a little olive oil

or cocoa butter on the ends of one's fingers and then begin at the right groin rubbing the deeper parts of the abdomen with a circular movement, the fingers not moving on the skin, making a series of small circles and gradually working up to the ribs, then across and down on the left side. This should be kept up for five or ten minutes at some regular time twice daily but not directly after a meal. The stroking method is sometimes used but I think this way is more effectual. Cases of birth paralysis and later on other forms of paralysis may be benefited by massage, but to give it correctly a medical person must personally instruct the mother first.

Babies with poor nutrition or circulation are often helped by rubbing with some warm oil like melted cocoa butter or olive oil. I do not advise cod-liver oil. After the warm sponge or tub bath the child is placed on a warm blanket in front of the fire and rubbed with the mother's hand on which the oil is placed. The part of the body not being rubbed at that time should be covered. The rubbing should be continued for fifteen or twenty minutes.

Older children who require massage for any special purpose are treated as in the case of adults, only more gently at first, and a trained masseuse or the family doctor should give the mother an object lesson to secure the best results.

Mercurial ointment is sometimes used for babies and children who have inherited syphilis and occasionally for other troubles. The prescribed amount should be used on the tip of the finger and then very thoroughly rubbed into the part indicated. Generally it is given on opposite sides of the body on different days. The armpit and groin

should receive special attention as the ointment is easily absorbed in these places. For example an arm and under the arm is selected one day, the other arm the next day, then the leg and groin on one side, then the other leg, and finally the abdomen. When the body has been gone over thus, one commences all over again. Care should be taken to wash one's hands very carefully after giving such an inunction.

ELECTRICITY

In cases of birth paralysis and infantile paralysis and some other types, electricity is sometimes quite helpful. The faradic current should be tried first and only when this proves useless should the galvanic current be used. *Electricity should always be ordered by a doctor* and the first application at least should be made by him. If he then thinks it safe he may personally teach the mother by an object lesson exactly how to use the battery.

CHANGE OF CLIMATE

Here we have one of the most valuable means of restoring a baby and young child to health. In cases of anemia, malnutrition, rickets, tuberculosis, influenza or grippe, asthma, hay fever, whooping-cough, summer diarrhea, and to build up a child after any prolonged illness a change of air will often work wonders.

In cases of influenza or grippe, where a very high temperature has been run for some time and which will not yield to any other treatment a complete change of air will bring down the temperature in a very short time in a great many cases. Whether this change of air shall

be in the country, mountains, or seashore, depends on the habitual residence of the patient and many other conditions which can only be determined in each individual case. Usually, however, children living near the sea, as in New York or Boston, do better when taken to the mountains or inland country; the change is more complete. Patients living in the North where the winters are very long and cold are often much benefited by a change to warm Southern air; especially is this true in cases of rheumatism and asthma.

High, dry air is helpful to tubercular cases in many instances. Young babies and children usually do better in high dry air that is at least moderately warm than in the very cold places, but older children stand the cold well if it is a dry cold. Dry cold and dry heat are much better than the same temperatures when there is much moisture or humidity in the air. It is not always possible to try this method of treatment but whenever it is, every effort should be made to do so as it will usually prove more helpful in building up a little patient than quarts of tonics, etc., which are apt to upset the stomach if given for too long a time. Atlantic City and Lakewood are the resorts most sought by persons living near enough. In winter I usually prefer Lakewood for babies under two years of age at least, as the high winds of Atlantic City are too vigorous for the young babies; older children usually do well at Atlantic City especially in the spring and fall; Florida is usually very helpful to young and delicate babies who need to live out of doors and cannot do so unless the climate is very mild. In summer the Adirondacks are beneficial to babies and children of almost

all ages. Children with hay fever or rose colds usually do better in a city than in the country where the hay and pollen from the flowers aggravate the disease. Each case, however, differs and must be studied carefully.

CHAPTER III

CARE OF PREMATURE AND DELICATE INFANTS

A PREMATURE infant is a baby who is born before the ninth month or two hundred and eighty days—the time allotted for carrying a normal infant. Babies born during the seventh or eighth month have a fair chance of surviving if they are wisely cared for, but those born before this time rarely live.

In deciding whether a baby is premature we must carefully consider its general appearance, its hair, nails, weight, and, most important of all, its length. When we find a baby measuring less than nineteen inches we can be almost certain it is premature. Premature babies, weighing three or four pounds, generally survive, and cases weighing two or even a little less have been known to grow up but they are very rare.

In the care of a premature infant there are two points that must be constantly kept in mind: uniform warmth and suitable nourishment. The organs of circulation and respiration are not, as a rule, fully developed in these tiny babies; therefore they have not enough "animal heat" or vitality to keep themselves warm; a sudden chill to such a baby may cost it its life. During the process of delivery the room must be warm and no drafts be allowed to strike the child.

UNIFORM WARMTH

The moment the baby enters the world it should be covered with a warmed blanket, and as soon as the cord is cut the baby must be placed in a warm basket and surrounded by hot water bags. Whoever handles these tiny strangers must have warm hands: a cold hand is quite enough to cause decided chill. The eyes of baby should be washed with a saturated solution of boric acid and this should be used lukewarm; or if the doctor thinks best he will often use a few drops of a one or two per cent. solution of silver nitrate or one of the numerous silver preparations now on the market.

When it is time to give the premature baby its first bath it is best to use warm olive oil in place of water. The bath should be given in front of an open fire if possible, the baby lying on one warm blanket and covered with another small one. Most of the bathing can be easily done by placing the hand under the blanket or carefully lifting up one corner of it at a time; under no circumstances must a draft be allowed to strike the baby. The cord should be wrapped in a small square of sterile gauze or soft linen and held in place by means of a broad flannel binder which has been warmed first. A soft diaper of gauze or even absorbent cotton is best to use in these cases; the baby may then be wrapped in cotton batting, covering the entire body, arms, and legs, or else it may be put into a warm flannel gown made like a bag and having no sleeves. If this bag is used it must be of wool flannel and not outing flannel. Outing flannel, being cotton, does not retain heat as well as real wool flannel. I have a slight preference for

the cotton batting because it can be made to fit closer to the body. A cotton suit made all in one piece is best of all.

When this cotton garment is used an incubator or an especially warm room is not needed. The baby in its cotton garment is simply placed in a basket, with two hot water bags near it and a light wool blanket thrown over it. Plenty of pure, fresh air can then be admitted to the

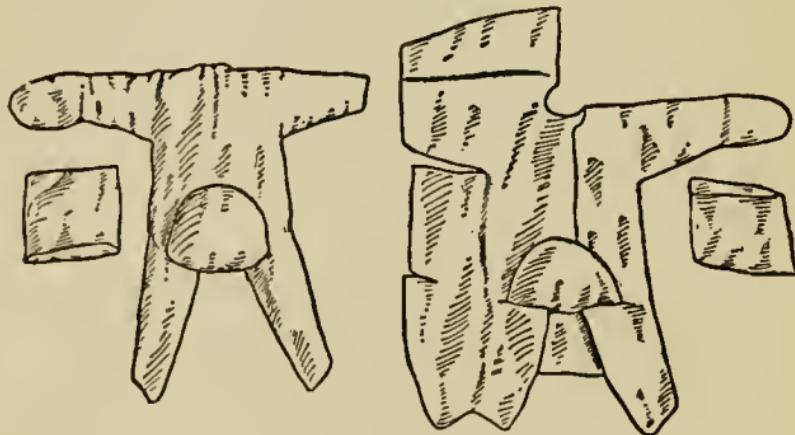


FIG. 13.—PREMATURE SUIT.

nursery, so that the baby breathes an atmosphere full of oxygen and still is warm enough to maintain a normal temperature.

The little garment has been found of so much value to a number of mothers and nurses that the idea is passed on, hoping it may thus save other little lives.

The garment is made from cheesecloth and is cut all in one piece. It has cotton basted inside of it, either one or more layers of the cotton being used as seems desirable for the special baby. As the baby becomes stronger the layers of cotton are gradually removed, until

one thin layer is left; then the baby is ready for real clothing. The little cap, mittens, and diaper are separate pieces. As the garment is changed only every other day it is basted onto the baby. The diaper and cap are simply laid on, and may be changed as often as needed.

The garment may be basted up the back or in the front, either way one prefers. It is usually a little more convenient to baste it in the front.

Incubators are sometimes used for premature babies but I have never found them very successful because it is almost impossible to give the child enough fresh air and at the same time keep it warm enough in one of these contrivances. A clothes basket, in the bottom of which are three hot water bags, then a warm, folded blanket, and smaller blankets covering the sides, make the best bed for the baby. When the child is placed in the basket another light wool blanket should cover it and outside of this, one or two hot water bags. Still another blanket may be thrown over the entire basket with the exception of a small space near the head which must be left open for ventilation and entrance of fresh air. A thermometer must be tied inside the basket and kept at a temperature of 90° F. for the first few days at least. If kept too warm the baby is apt to develop a "hot water bag temperature"; the rectal temperature going as high as 104° to 105° F. in some cases.

The basket should be placed on a table in the center of the room where there is a good circulation of fresh air, but it may be partly surrounded by screens. It is a great mistake to tuck such a baby away in a corner of the room or in front of a register where the air is bad and

does not have a chance to change frequently. A careful watch must be kept on the hot water bags and when it is necessary to change one it is well to have another hot one on hand to be slipped in its place. An electric pad is very much less trouble than hot water bags or bottles and also preserves a more uniform heat, but to employ these pads there must be electricity in the house. The temperature of the room in which the baby is kept need not be over 70° F. and it is absolutely essential to have the air fresh and pure.

NOURISHMENT

The question of nourishing premature babies is often a difficult one to solve. Breast milk is far the best food if it can possibly be obtained. As the mother of a premature baby is not apt to have much milk a wetnurse will often have to be employed. When such a nurse is engaged it will be found best for many reasons to take her own baby also; the premature child will not be able to use all the nurse's milk and her own baby will be needed to draw the remainder; if a breast pump is used for this purpose it may cause the milk to dry up. The nurse's baby can easily be given a bottle of modified milk one time and his mother's milk the next so that there will be plenty for both babies. Sometimes the premature baby will be too weak at first to draw the milk from the breast; in such cases it will be necessary to use the breast pump, depending upon the nurse's own baby to keep up the flow. It will often be necessary to dilute the breast milk a little with water or possibly Vichy at first.

The milk may be fed to the premature infant by means of a dropper, or much better, a "Breck Feeder." This little article is simply a glass tube with a rubber bulb on one end and a tiny rubber nipple on the other. The



FIG. 14.—BRECK'S FEEDING TUBE. (After Holt's "Diseases of Infancy and Childhood.")

nipple is placed in the baby's mouth, and he draws on it as much as he is able, while mother or nurse helps him by gently squeezing the rubber bulb on the other end. Many babies have been taught to nurse in this way and as they grow stronger very little assistance need be given,

until finally they can use a regular nursing-bottle or take the milk from the breast itself. Great care must be taken to keep the milk that is drawn from the breast warm enough. This may be done by placing the bulb of the breast pump, in which the milk is drawn, in hot water and then pouring it a little at a time into the glass tube of the feeder which has previously been warmed.

The amount of food given to a premature baby depends altogether upon its size; some very small and feeble infants will not be able to take more than one teaspoonful at a time and will have to be fed every hour with a little stimulant in between, while others can take an ounce of food every hour and a half or two hours.

When breast milk is impossible to obtain either from the mother or from a wetnurse, modified milk must be resorted to. A weak formula must be used at first and a very gradual increase in strength made as the baby's digestive organs grow stronger. It is often a good plan to wholly or partially peptonize the milk for a few days at least, as the infant needs this help. A formula suitable to start many premature babies on is made up as follows:

FORMULA FOR MODIFIED MILK

From a quart bottle of fresh milk remove, with a dipper, the top sixteen ounces; of this top milk take one ounce, add to it nine ounces of boiled water, one-half ounce of lime water, two teaspoonfuls (level) of milk sugar or three of malt sugar. If this is to be peptonized the lime water should be omitted and Fairchild's peptonizing tubes used as directed. If this food is well digested then gradually work up to the regular modified milk formulas (*see page 22*) and little by little, shorten the

time of peptonizing until this process can be entirely done away with.

Sometimes these infants are too weak to swallow and in such cases the only thing to do is to give the food and stimulants by means of gavage. This apparatus consists of a small rubber catheter (12 to 16 American scale), a rubber connecting tube, and a glass funnel. The catheter is dipped in a little warm olive oil, then gently pushed down the baby's throat, through the esophagus and into the stomach; the warm milk is then poured into the funnel and allowed to run down the tube. As soon as the funnel is empty the catheter is tightly pinched and very quickly drawn up. When this method of feeding is not necessary all the time, it is often advisable to use it two or three times a day and let the baby take a bottle or the breast the rest of the time. If a mother is to use this method herself, she must be carefully taught by her physician or trained nurse.

Premature babies need plenty of water to flush their kidneys. They should be given at least two teaspoonfuls between each feeding; this water must be boiled and given warm and if the baby needs stimulants they may be given in the water. If the water is given by a medicine dropper, introduce the dropper way back into the mouth so that the fluid falls on the back of the tongue; in this way the child will swallow better and lose less of the water.

Another method of nourishing a premature infant is through its skin; the daily oil bath that it receives is also a slight means of nourishment if the oil is *well rubbed*

into the skin. Cocoa butter may also be used for this purpose. No great amount of nourishment can be depended upon by these inunctions however; they are simply an adjunct to the other means of nourishment.

Premature babies are exceedingly apt to be constipated and even when the movement itself is soft they often have not the strength to expel it, the muscles of the rectum are so weak. The intestines must be cleared out at least once a day, and to do this either an injection of one ounce of olive oil may be given by means of a soft rubber bulb syringe or a small, soft rubber catheter may be gently worked up into the lower bowel and the intestines flushed with sterile water or salt water. An ordinary fountain syringe to which the catheter is attached is a convenient apparatus to employ; from six to eight ounces of water or salt solution is enough to use. By using the injection at the same time every day the baby's bowels may be gradually trained to move by themselves. A premature baby who indulges in a good cry every day is much more hopeful than one who has to be made to cry and then only has a feeble whine. A baby should not be stopped from crying unless he has a decided cry of pain; he needs this cry very much to expand his lungs.

It is not wise to weigh these premature babies more than twice a week; they are so apt to get chilled in the process. When they are weighed it must be done while the cotton or flannel bag is on the baby, and a warm blanket is in the scales and over the child; then when he has his oil bath all these things may be removed and weighed and their weight subtracted from the total weight when baby's actual weight will be learned. Very often

these tiny babies will not gain at first but it is a bad symptom if they lose in weight steadily.

As the premature baby grows older and gains in strength and vigor he may be allowed to take a short airing in the sun with the window lowered a few inches; and the time and amount of air may be increased a little every day, until he can at last be taken out of doors if well wrapped. Drafts should always be avoided, however, both in the house and out of doors.

Babies not premature, but who are small and delicate from other causes, should be treated in the same manner.

CHAPTER IV

MOST COMMON DISEASES OF THE ORGANS OF DIGESTION

DISEASES OF THE MOUTH

HERPES—FEVER OR COLD SORES

Causes.—Herpes of the lips is a disease known to most people by the common name of “fever sore” or “cold sore.” It usually occurs where there has been some fever but may appear without any other marked symptoms.

Treatment.—Children are so apt to pick the sore lips or suck them that it is often difficult to cure these sores. A dusting powder of equal parts of burnt alum and bismuth should be applied to the sore several times a day after it has been washed with boric acid solution. Another good thing to use is a paste called “bassorin paste”; this may be difficult to procure, however, in any but large cities. If the child persists in picking the sore, cotton bags or thumbless mittens should be placed on his hands because the sore will not heal unless it is left alone.

LITTLE ULCERS

Treatment.—Little ulcers in the corners or angles of the mouth are not infrequently seen. A mouthwash of

saturated solution of boric acid and burnt alum and bismuth powder mixed in equal parts should be tried, but if these remedies do not heal the ulcer it should be touched with a silver nitrate pencil and then the powder applied.

Various cracks and fissures sometimes seen in the lips should be treated by the same methods.

ULCERS OF THE TONGUE

Cause.—An infant who has cut his lower incisor teeth, may sometimes have a little ulcer under his tongue. This is caused by friction on the mucous membrane by the teeth while the baby is nursing from the breast or bottle.

Treatment.—The tongue should be gently lifted and the ulcer washed with boric acid, then touched with silver nitrate and the burnt alum and bismuth mentioned above dusted on. If the ulcer is a deep one and will not heal the baby may be fed by a dropper or a spoon for a day or two, so that he will not need to suck.

RED PATCHES ON THE TONGUE

Cause.—Red patches surrounded by a gray border are sometimes seen on the tongue; they often last a long time and their cause is not fully known at present.

Treatment.—They require no especial treatment other than keeping the mouth clean with a mouthwash like boric acid.

GEOGRAPHICAL TONGUE

The condition commonly known as geographical tongue

is very similar; the margin of the tongue here is red and the center gray or white; an irregular wavy line separates these two portions and looks much like the outline of a map—hence its name.

PAINFUL TEETHING

There is no doubt that babies often suffer a good deal from the cutting of teeth. The intense congestion and swelling of the gums is necessarily painful at times and causes more or less restlessness. Not infrequently there is fever and even some vomiting or green, undigested stools.

Treatment.—A cooling mouthwash, such as borolyptol diluted with equal parts of cold water, may be rubbed on the inflamed gums and frequent drinks of cool water given to the baby. When the tooth is near the surface it may often be rubbed through. To do this place a piece of sterile gauze on your finger and firmly rub the membrane over the tooth; when the edge is felt through the gum wash it with boric acid frequently, so that the gum will not become infected while there is a raw surface.

If there is great restlessness, fever, or any signs of a convulsion, a physician should be asked to see the child and lance the gum. This will at least let out some of the throbbing blood, relieving the congestion and so easing the pain. It is best not to give the baby hard rings, rattles, etc., to bite on; they often harden the gum and may not be clean.

When signs of indigestion from teething are noticed they should be treated just as at other times. A dose

of castor oil should be given, the food weakened in strength, or simply barley water given for a few feedings, until vomiting has ceased or the stools are again normal.

Care should be exerted not to tax the digestion of a teething baby, either breast-fed or bottle-fed. A breast-fed baby may have the milk diluted by giving him an ounce of boiled water or barley water just before each nursing, then allowing him to have the breast for five or ten minutes only. For twitching and nervous symptoms, in addition to above treatment, a bag should be filled with finely cracked ice and kept on the baby's head; he should be kept absolutely quiet and disturbed as little as possible. An enema of soap and water will often relieve the nervous symptoms by quickly emptying the bowels. When there is fever and restlessness a sponge bath of a basin of tepid water and two tablespoonfuls of alcohol will many times prove very gratifying and induce the child to fall into a refreshing sleep.

Every ill should not be attributed to "only teething," but the teeth should be borne in mind as a possible cause of the disturbance.

STOMATITIS

Causes.—This condition may be caused by injury or by heat, as taking food that is too warm, or it may accompany the infectious diseases. This is an inflammation of the mouth. We meet with several kinds of stomatitis; the simple or catarrhal variety, the aphthous, ulcerative, thrush, gangrenous, and the varieties that occur with some of the infectious diseases.

Simple or Catarrhal Stomatitis

Symptoms.—In the case of simple or catarrhal stomatitis we see swelling and increased redness of the lining membrane of the mouth with abundant saliva. The mouth is hot and there may be some general temperature; the baby is fretful, and he evidently does not care to eat on account of the pain caused by so doing. There may even be some vomiting or diarrhea.

Treatment.—To cool the hot mouth, ice may be given to suck and the cooling mouthwashes mentioned (*see p. 7*) should be freely used. If the food is absolutely refused it may be given to young babies by gavage, a description of which will be found on page 89.

Aphthous Stomatitis—Canker Sores

Symptoms.—In aphthous stomatitis or “canker sore mouth” we see small, yellowish, white spots scattered over the inner surface of the mouth; they soon turn into tiny superficial ulcers. The disease usually lasts from five days to two weeks. The ulcers frequently come in crops; they are most numerous at the border of the tongue and inside of the lips. The other symptoms are the same as in simple stomatitis.

Treatment.—The treatment is the same as in simple stomatitis, except that the little ulcers should each be touched with a little powdered burnt alum. The alum may be applied by means of a swab, made by firmly twisting a tiny piece of cotton on the end of a wooden toothpick, then dipping this in the powder and gently touching each ulcer.

Ulcerative Stomatitis

Causes.—Ulcerative stomatitis is not found unless the child has teeth. It begins where the teeth meet the gum and extends along them and to other parts of the mouth. Lack of cleanliness in care of the mouth and teeth, poor nutrition, and any general “rundown” state of health may cause this form of stomatitis.

Symptoms.—One of the most marked symptoms here is the very foul breath of the sufferer. The saliva often pours from the mouth, the swollen and spongy gums will frequently bleed if touched, and the distinct line of ulcers will usually loosen the teeth, which will fall out. Fever, pain, and a generally miserable condition accompany this trouble. It sometimes yields promptly to the following treatment but may last for months if the patient's general health is much below par.

Treatment.—Chlorate of potash given internally is the treatment above everything else in these cases. The saturated solution is generally given—one-half teaspoonful every two hours. This is best given in a tablespoonful of water. The medicine may be gradually reduced in amount and frequency as the mouth improves, and often entirely stopped by the end of a week. The local treatment should consist in syringing the mouth with a saturated solution of boric acid, or one of the antiseptic mouthwashes. This should be done every hour if the case is a severe one. Besides this the ulcers should be touched with silver nitrate and the burnt alum and bismuth in equal parts then dusted on. I have found the following astringent mouth-wash most helpful in these cases.

FORMULA FOR MOUTHWASH

Tincture of myrrh, one drachm.
Tannic acid, one-half a drachm.
Glycerin, one-half ounce.
Water, four ounces.

The mouthwash is used three or four times daily and applied to the sore parts by means of a swab of absorbent cotton. Plenty of fruit and fresh, green vegetables should be given such a child, and later an iron tonic is generally needed. A doctor should have charge of the child until the mouth is entirely healed.

THRUSH OR SPRUE

Causes.—Thrush or sprue is a disease known to nearly all mothers; it is caused by a little parasite and is most often due to lack of cleanliness in care of the baby's mouth or his bottles and nipples. It is much more apt to occur in poorly nourished children whose vitality is not quite up to the mark.

Symptoms.—The small, white specks or flakes seen on the tongue, inner surface of the lips and cheeks, as well as on the roof of the mouth and as far down the throat as one can see, resemble particles of milk, but unlike them, they cannot be wiped off. These little patches often join one another and form quite an extensive membrane. The baby's mouth is generally dry and there is difficulty in taking food and swallowing when the disease is well advanced.

Prevention and Treatment.—The most careful attention should be paid to the baby's nursing-bottle and the cleanli-

ness of the rubber nipples. If he has been in the habit of using a "pacifier" this must at once be burned, never to be replaced, as it is often the cause of this disease.

The mouth should be carefully washed with a saturated solution of boric acid three times daily; and every hour, in severe cases, with a solution of bicarbonate of soda, using one teaspoonful of the soda to one cup of boiled water. Later it will be found that after each meal will be sufficiently often to use this. In washing the mouth a piece of absorbent cotton should be firmly twisted around the little finger, dipped in the solution and then gently applied to all parts of the sore mouth. If the mouth is scrubbed or treated roughly more harm than good is done. Never under any circumstances should anything very sweet be used in treating this trouble; honey and borax, so often advised by the old-fashioned nurse, are about the worst remedies that could be used.

DISEASES OF THE PHARYNX

ACUTE PHARYNGITIS OR "SORE THROAT"

The pharynx is the tube that leads into the esophagus and hence into the stomach; so it may be classified as part of the alimentary tract.

Acute inflammation of the pharynx or pharyngitis may be a disease by itself, or may be associated with other diseases. Especially does it occur with measles, influenza, scarlet fever and diphtheria.

Causes.—Acute primary pharyngitis may be caused by exposure to cold and wet, or to high winds which carry the filth of street dust, or to indigestion. A common cold

often begins with pharyngitis, the child complaining of a "sore throat." Children who are mouth breathers, having adenoids, are very prone to this trouble as are also those who have been too warmly clad and treated like hot-house plants. Some physicians think that rheumatism or uric acid in the system is the explanation of repeated attacks of acute pharyngitis.

Symptoms.—There is usually inflammation of the parts higher up, as the nose and a part called the nasopharynx.

Looking into the throat, it will be found bright red and many times very dry, while at others a coating of mucus may be seen there. There is often a slight swelling of the glands on the outside of the throat; there is some pain and difficulty in swallowing and there may be quite high fever. In the mild cases, there is very little elevation of temperature. The child will feel more or less languid and cross and may have an irritating cough.

Duration.—The disease by itself rarely lasts more than three or four days but if the process extends into the larynx or bronchial tubes it lasts much longer and is more serious and troublesome.

Treatment.—Because of the liability of pharyngitis to precede or accompany the contagious diseases, it is always best when possible to keep the child by himself if there are other children in the family. While this may be some additional trouble to the mother, she will be repaid a thousandfold should the patient develop a contagious disease and the other members of the family escape it because of her careful forethought. The patient should not be allowed to go out of doors and should be kept in bed if there is even a slight fever.

The first thing to be done in the way of medicine is to open the bowels freely. Calomel, castor oil, or magnesia may be used. The citrate of magnesia is pleasant to take and I often prescribe it. For a child of two years one ounce given every hour for three or four doses is correct; a child eight years of age or over may be given a glassful before breakfast. If there is high fever, alcohol sponge baths will do much to make the patient comfortable. Cold applications to the outside of the throat will often be helpful. A compress wrung out of equal parts of witch hazel and water, or alcohol diluted four times with water, is best to use. To protect the nightdress from getting wet, a little piece of oil silk may be basted around the collar; this is better than placing it outside of the wet compress because in this way it does not prevent evaporation of the cooling fluid and when the evaporation can go on the child's throat will be cooler and the inflammation more quickly allayed.

If the patient is old enough he should be made to gargle every two or three hours with boric acid solution, or borolyptol one part, water three parts. When the child cannot gargle the solutions may be put in a throat atomizer and the throat sprayed. Every child should be taught to gargle by the time he is five or six years old at the latest.

If a doctor is not in attendance the mother must place the child in a good light and make a careful examination of the throat every day; the tongue may be held down by a spoon handle so that all parts of the throat can be seen. At the first sign of white spots in the throat a doctor must be summoned, as diphtheria may be develop-

ing. The mother should also carefully examine the child's body for a rash two or three times a day, remembering that the sore throat may be only the onset of measles or scarlet fever.

Diet.—The diet should be light, such as milk, broths, junket, or wine jelly, and most gratifying of all to the dry little throat is ice cream,—the simple, vanilla, home-made variety is the best. Pieces of cracked ice may be given the child to hold in his mouth and swallowed slowly, and frequent drinks of cool water should be given.

CHAPTER V

MOST COMMON DISEASES OF THE ORGANS OF DIGESTION (*Continued*)

MOST COMMON DISEASES OF THE STOMACH AND INTESTINES

VOMITING OR ACUTE GASTRIC INDIGESTION

VOMITING is a very common disorder in babies and young children but it must never be looked upon as normal. Old-fashioned nurses often tell a young mother that vomiting is a sign of a healthy baby, but this is not so. When a baby vomits, something is wrong either with the food or with the child itself and every effort must be made to ascertain the cause and cure it.

Causes and Symptoms.—When a baby is over-fed either from the breast or bottle or irregularly fed, he will invariably vomit and this occurs almost directly after a meal, the milk looking about the same as it did before it was taken. In such cases a smaller quantity should be given at a time with a longer interval between meals; if the smaller quantity alone does not stop the trouble, absolute regularity must be observed. A nursing baby should be weighed just before and just after nursing to see how much he is getting in the usual twenty minutes of nursing. If he is getting more than is required for

his age and size he should be given the breast only for ten or fifteen minutes or for the length of time required for him to take the proper number of ounces (*see* page 13).

Vomiting which occurs some time after feeding usually indicates indigestion. The food comes up in curds and may have some greenish fluid, which is bile, mixed with it. There may be fever, pain, or restlessness with gas in the stomach and more or less prostration with this kind of vomiting. Older children who have this sort of vomiting often complain of nausea first and a "stomach ache;" they may wish to vomit but cannot do so for some time after the first discomfort is noticed. When they do succeed in emptying the stomach of the undigested food, they are greatly relieved. The tongue is usually coated and the appetite lost for several days after such an attack. Many times intestinal indigestion is present also.

Treatment.—In cases of this kind the first thing to do is to empty the stomach completely. If a doctor is called he will probably wash the stomach, especially in young infants. This is a simple process and greatly relieves the child. If a doctor is not within reach, the mother must stop all food at once and give the baby lukewarm water in his bottle until he vomits profusely and no more undigested food is seen in the material vomited.

An older child may be given some syrup of ipecac, usually in twenty-drop doses every half hour until the vomiting takes place, then large draughts of lukewarm water which will also be vomited and clear the stomach completely. After a little rest a dose of castor oil should be given so that any undigested food that may remain will

pass off through the bowels. An enema of warm water and soap given high up with a soft rubber catheter is often helpful by quickly emptying the bowels and relieving the pressure of gas.

In the case of a young baby only boiled water given as hot as it can be taken should be given for three or four hours after the vomiting has stopped, then barley water or albumin water, and a little later whey may be tried in amounts of one ounce at first, gradually increasing the amount as the child improves. A nursing baby may be given the water and barley or albumin water for the first two or three feedings, then given one ounce of boiled water or barley water just before each nursing and allowed to have the breast for five minutes, gradually working back to the usual length of time and then stopping the water. When a bottle-fed infant is again put on milk, the formula must be a very weak one and often it will be wise to peptonize the milk for a few days. Skimmed milk or casein milk may be tried. Little by little the proportion of milk should be increased until the usual formula is reached.

An older child should be given clear broths of mutton or chicken, from which every particle of fat has been removed. Sometimes these broths are taken better if given in the form of cold jelly. Carbonated water, like Vichy, is also good and a little later a small piece of zwieback may be tried. When milk is given it should be diluted considerably and a little lime water added for a few days. Four or five days at least should elapse before the child is allowed to go back to his usual diet. In these cases the mistake should be avoided of dosing the child with medi-

cine which will often make matters worse and prolong the attack.

For pain, or where the vomiting cannot be checked easily, a small mustard paste made of one teaspoonful of mustard and six of flour mixed into a paste until it is smooth with a little cold water, may be spread between two layers of thin muslin and placed directly over the child's stomach for five or ten minutes until the skin is red. Hot flannels or a hot water bag placed over the stomach will also give relief at times. A child may vomit from habit, regurgitating his food after each bottle; gavage feeding helps these cases.

So many of the contagious diseases are ushered in by an attack of vomiting that the mother should always be on the lookout for an eruption after a vomiting attack.

CHRONIC GASTRITIS

Infants

This is one of the most trying diseases both for the mother and physician to deal with. Everlasting patience and the most minute attention to detail is necessary; unless the mother will follow instructions given to the letter, very little improvement will be seen in these cases. Chronic gastritis is sometimes spoken of as gastric catarrh, catarrh of the stomach, or simply as chronic vomiting. Pyloric stenosis must be thought of also where a baby has chronic vomiting.

There is an inflammation of the lining membrane of the stomach and there is an abundant quantity of mucus.

In many cases the same trouble exists in the intestines also, but this is not necessarily so.

Causes.—The disease is much more frequently seen in infants than in older children, but when the latter are badly fed or have had a severe illness and are much run down it sometimes develops in them also. Bottle-fed infants are more apt to suffer from this trouble than are breast-fed ones but even in babies nursed by their own mothers chronic gastric catarrh may develop. Babies either breast-fed or bottle-fed who are allowed to have a meal every time they cry are frequently subject to this disease. The stomach is never allowed to be empty and has no rest; one meal is put into it before it has had time to digest the preceding one, consequently the food sours, then ferments and putrefies, and inflammation and catarrh are begun.

It is also caused by the proportions of fat, sugar, and protein in the milk, either breast or cow's milk being unsuitable for the particular baby, or it may be caused by many of the proprietary foods. These poor infants are often the victims of much experimenting: one patent food after another will be tried until both the doctor and the mother have run through the entire list of foods they have ever heard of.

The early use of tea, coffee, or beer will many times cause chronic gastritis.

Symptoms.—The symptoms are vomiting, at first not frequently or in large amounts, of undigested food that is sour, and later acid mucus. As time goes on the vomiting will increase in frequency and amount, the baby vomiting nearly all the time between meals; the abdomen will

become distended with gas; the child steadily lose in weight; the fontanel be depressed; the hands and feet cold; the face pale and pinched; the stools very constipated, or if the intestines share in the trouble, undigested food and mucus will be passed. The child becomes a typical "marasmus baby;" he sleeps badly and is fretful and restless when awake.

Treatment.—The treatment is best begun with stomach washing, using hot water and bicarbonate of soda, as described in the treatment of acute gastritis. It is often helpful to do this every day for a while, then every second and third day as the child grows better.

It is of the greatest importance that these cases should be kept warm; by this I do not mean hot, but just warm enough to be comfortable. Hot water bags should be kept in the crib and the baby should wear woolen underwear and long woolen stockings pinned to the diaper. Massage given once a day with a little warm olive oil or cocoa butter will often help the circulation. I have not found cod-liver oil of any more benefit than the above, and its odor is so disagreeable.

Sun baths are often good for these babies; the eyes must be carefully protected from the glare. It is important to keep the clothing about the neck and chest dry, as the baby in his weak condition is subject to colds, bronchitis, and pneumonia. A piece of waterproof material may be bound with tape and kept under a soft bib or towel which is about the child's neck and can be often changed.

On pleasant days these children should spend much of the time out of doors. The baby should have a hot

water bag in his carriage and not be rolled about much but taken to some quiet spot and kept still. When in the house he is better off on his back or side in his crib than in his mother's arms. Two or three times a day he may be held up over the shoulder for a few minutes at a time so that his lungs may expand in all parts, but never just after a meal. The more quiet he is kept after feeding the better. Tight clothing should also be avoided.

Food.—The food must receive the most careful attention. If the baby is breast-fed the mother should at once have a sample of her breast milk analyzed to see if the fat or protein is at fault.* If too high a percentage of fat (over five per cent.) is found she should stop taking butter, cream, and in some cases meat; also she must give the baby some hot, boiled water or barley water just before each meal. If the protein is too strong and the fat too weak more cream should be taken, also butter, meat, and out-of-door exercise. Boiled water may be given in this case also. An attempt at least should be made to regulate the mother's milk before it is decided to give up nursing.

If all this proves useless then a good wetnurse should be tried if possible. It may be necessary to try several before one is found whose milk the baby can digest. If a wetnurse is out of the question cow's milk should be given, using a weak formula of the plain milk mixtures (*see* page 20), and if it will not stay down peptonized milk or skimmed milk should be given. Next in order to be tried is casein milk; then whey. This may be di-

* Normal average breast milk tests: Fat, 3.50 per cent.; protein, 1.25 per cent.; sugar, 7 per cent.

luted with rice or barley water or granum. As a start one part whey to four of water or gruel should be given and the amount gradually increased. Feedings should not occur oftener than every three hours, and four is preferable if any food is vomited between meals. Two ounces at a time should be given at first. A spoon or medicine dropper may be used in place of the nursing-bottle if the nipple seems to make the child gag.

Beef juice or diluted mutton broth may next be tried in small quantities. Condensed milk diluted with twenty parts of water at first is the next alternative of possible foods. I have found that a German preparation called "Ramogen" is often retained in obstinate cases of gastritis. It must be admitted that the proprietary foods succeed in a few cases where all forms of milk have failed, but they should be tried only as a *last resort*; and then as soon as the vomiting has stopped cow's milk should be added to them little by little until the baby can take a regular modified milk formula. One should never begin to experiment with these foods at the onset of the disease.

In a bottle-fed baby much the same method must be pursued. Very often these bottle-fed babies will begin to do well at once if a suitable wetnurse can be found. Sometimes they refuse to take the breast because they have always been used to a rubber nipple. In such cases a nipple shield should be used and the infant will then draw on it well. It is often a good plan to give whatever is being used for food at intervals of four or even six hours and at intervals intervening to give a half teaspoonful of peptonoids or panopepton in half an ounce of water, either very hot or very cold. Very small quantities of a

strong formula of modified or peptonized milk will sometimes be retained better than larger amounts of a weak formula. This plan should be tried before deciding to give up milk, also feeding by gavage two or three times daily, as food given in this way may be retained. Casein or protein milk already mentioned often succeeds in these cases (*see* page 28).

If the child is constipated it will be better to give a suppository or even an injection than to try to give laxatives by the mouth, which would in all probability be vomited. If a free movement cannot be obtained in this way the milk of magnesia or very minute doses of calomel (one-twentieth or one-tenth of a grain every hour until half a grain or one grain has been taken) are very often the best remedies. When so little food is being retained it is only natural that there should be little passed through the intestines.

Older Children

Treatment.—Older children with chronic gastritis are easier to treat, but they should be made to obey the rules laid down by the mother or doctor. Plenty of fresh air and sun, with moderate exercise, a daily tepid bath followed by a dash of cold water down the spine and on the chest, and a brisk rub to start up the circulation.

A teaspoonful of the rhubarb and soda mixture three times a day, which should be given after meals, will sometimes be beneficial. If a laxative is needed citrate of magnesia is about the best and most pleasant to take. The abdomen must be covered by flannel even in these older children and the hands and feet kept warm.

Food.—If milk is tolerated at all, it should be diluted with a little lime water or Vichy at first; buttermilk should be tried. Dry toast or zwieback, clear broths, soft boiled or coddled eggs, or raw beef sandwiches are the articles most likely to be retained.

Three regular meals a day must be given, and the mother should not yield to a plea for lunches between meals. No sweets should be allowed or any rich foods, as pies, cakes, etc.

RECURRENT OR CYCLIC VOMITING—ACIDOSIS

Occurrence.—This disease is not infrequently met. It may occur in infants but is most common in children between two and four years of age.

Duration.—The attacks may last over a period of years, recurring at irregular intervals.

Causes.—Children of neurotic parents often suffer from this disease; usually an attack cannot be traced to any one cause. Often a too starchy diet, especially where potatoes and too much oatmeal have been given, may be responsible for an attack. Again an attack may follow one of tonsillitis or bronchitis. I recently watched a little patient have a very severe attack after grippe. In a country town not long ago, there was quite an epidemic of this so-called *acidosis*, some of the cases being so ill that they did not recover. As a rule, however, the attack lasts but two or three days.

Symptoms.—Often there will be a day of languor with loss of appetite and dark rings under the eyes; sometimes the stools are white or there is some constipation

and coated tongue. The temperature may range from 101° to 104° F. or higher, but it drops often to 100° F. The vomiting then begins rather suddenly. It occurs when no food is taken and is violent in character; if water or any food is tried the vomiting becomes worse; usually nothing at all can be retained—the child cries for water but cannot retain even this. Often if the attack is a severe one the child will pass into semi-consciousness and appear much exhausted. The urine will be scanty and highly colored and if it is analyzed there will generally be found a substance called *indican* and also *acetone*. The material vomited may first consist of food and later watery mucus and even some blood. As the child reaches the maturing period very often the attacks will entirely cease.

Treatment and Diet.—If from experience the mother can tell before an attack actually comes on, then she may possibly prevent it by giving calomel with the approval of her physician. If the vomiting has once started, however, nothing seems to have any effect in stopping it. Some physicians have tried large doses of bicarbonate of soda given very frequently, but as yet this has not been tried frequently enough to be sure of its success.

The child must be kept perfectly still in bed, and water—six to eight ounces—given with a long catheter by the rectum. This will help the kidney action and relieve, to some extent, the great thirst. It may be repeated four or five times daily.

After the vomiting has ceased small quantities of fat-free broth, kumyss, zoölak, or matzoon may be tried, at first only an ounce every hour or two, and later the quantities gradually increased as the child grows stronger.

Starchy foods should be greatly limited for some time at least and never given to any excess at any time in a child with this tendency. The best diet for these children consists of green vegetables, meat, some milk, stale bread, the latter usually of the whole wheat variety. No candy or cake should be allowed, and very little cereals and no potatoes. Eggs agree with some of these children, but in other cases they do not act well. Usually a little white fish may be taken and some fruit.

If the mother can have the urine tested about every month, in this way she may be able to tell when an attack is coming on, and by promptly giving calomel and cutting down the diet, or by giving bicarbonate of soda in doses of fifteen to thirty grains in water three times daily, she may possibly ward off an attack.

BOWEL MOVEMENTS OR STOOLS

To know when the movements of the bowels are abnormal the mother must first know what is normal in the case of babies and young children. During the first few days of life a substance, called *meconium*, is passed from the intestines. This is a dark-green, sticky mass and has been formed in the baby's bowels before birth; it is perfectly normal.

After the baby has begun to take milk, however, the character of the stools should change to an orange yellow if the baby is breast-fed, or a little lighter yellow if he is bottle-fed. Normal stools should be smooth and yellow, about the consistency of thick cream or thin porridge and contain no curds or lumps. In the case of a breast-

fed baby, fine white specks or curds in the stools need cause no alarm if the baby is otherwise well. In a bottle-fed baby if the curds are seen it is usually best to make some slight change in the food.

During the first year of life there should be very little odor to a baby's stools; after this they generally have some at least. They should number from one to three or four in twenty-four hours during the first six months; then over two stools daily are not often found in a perfectly normal child, but as many as four or five small ones may be passed without alarm if they are normal in character and the baby is otherwise perfectly well. As long as a baby has one free stool daily he cannot be said to be constipated. When the baby begins to take solid food at the age of one year the movements usually are formed and soon become darker as the different articles are added to the diet. If a stool becomes slightly green after standing a little while it is still a normal stool.

Abnormal Stools

Curds in the Stools.—Little white lumps or specks varying from the size of a pinhead to a small nut are quite often seen in cases where there is more or less indigestion. If these curds are soft, large, and white, they are composed almost entirely of fat and show that there is more cream or fat in the milk than can be digested by that particular infant. In such a case, if the baby is fed at the breast, the mother should proceed as in the case of gastritis caused by excess of fat, as already described on page 109. If the baby is a bottle-fed child then a formula

containing less cream or fat should be used, or if the case is a very bad one it may be necessary to give skimmed milk for a time.

Curds seen in the stools may be hard, tough, and yellowish; sometimes these are brownish but on being cut open look white. These are the protein curds and if seen frequently in a breast-fed baby the mother should do as advised on page 109. If seen in the stools of a bottle-fed child, a little more cream and a little less of the lower part of the bottled milk should be tried, or if boiled water is being used as the diluent of the food a cereal gruel, like barley or rice water, should be given. A dose of castor oil should precede this in either case. There will often be some mucus with these curdy stools.

Loose, Green, or Yellowish-green Stools Having a Sour Odor.—These stools have sometimes been likened to "scrambled eggs." They generally denote too much sugar in the food and sometimes too much fat as well. The sugar should be reduced in quantity or in some cases malt sugar may be used in place of milk or cane sugar. If this does not make the stools normal then proceed as for fat curdy stools. Mucus may also appear with these stools.

Large, Dry Clay-colored or Whitish Stools.—These stools usually denote a sluggish liver often caused by excess of fat in the food. They usually have a foul odor. The fat should be cut down or skimmed milk used. A buttermilk mixture, or casein milk, may be tried (*see* page 28).

Hard, Dry, Constipated Stools.—See treatment of constipation on page 131.

Thin, Watery, Yellow or Green Stools With or Without Mucus and Blood.—See Treatment of Diarrhea, pages 120-124.

Stools of Other Colors.—Certain medicines show in the stools at times and change their appearance very much. Bismuth and iron usually make the stools black, while calomel causes green stools, and much malted food or sugar, as Mellin's Food, for example, will cause the stools to appear brown.

Stools sometimes leave a pink stain on the diapers. This is of no special significance and is due simply to a change in the bile pigments. Stools in a young baby that are very black after the first few days of life should at once be examined for blood. These are called *tar stools*, and are sometimes seen in a baby who has the bleeding disease, or what is known as melena. Dark spots of blood may also be seen in cases of dysentery and other intestinal diseases.

ACUTE INFECTIONS OF THE STOMACH AND INTESTINES

SIMPLE OR SUMMER DIARRHEA

Simple or summer diarrhea, often called "summer complaint," is one of the most frequent diseases to which babies are subject. The stomach is usually involved as well as the intestines. The mortality among infants under one year of age is great, but within the last few years it has been considerably reduced.

Causes.—Bad surroundings, summer heat, living where dirt and close, hot air prevail, irregular or incorrect feed-

ing, infected milk are among the causes of summer diarrhea.

Breast-fed babies may have the disease also but are much less liable to it than are bottle-fed infants. Marasmus babies and those whose vitality are lowered from any special cause are frequent victims.

Symptoms.—The first symptoms are generally increase in the number of stools, which are thin and yellow, then green or brown in color, and have a sour or foul odor; very often there is also some vomiting. The abdomen is distended from gas and usually there is a little fever— 100° to 101° F. There is marked loss in weight. The fontanel becomes depressed and the child restless and sleeps badly. In children who have before seemed perfectly well the onset is often very sudden and severe.

The attack begins with hard vomiting, the fever is high, often 105° F. In a few hours the diarrhea begins, the stools being yellow with undigested food, then green and often frothy with a bad odor. The stools are very frequent, twenty or more being passed in twenty-four hours; consequently the skin about the anus and all over the buttocks may become very much irritated and the pain great whenever the baby has a movement or passes urine. The sunken eyes and pinched, drawn look in the little face is sad to see. If the treatment has been prompt these cases usually recover but if neglected or if the subject is a weak one the baby goes from bad to worse and finally dies, perhaps having convulsions before the end.

Prevention.—As an ounce of prevention is always worth many pounds of cure, the mother of a young baby should spare no pains in caring for him during the heated term.

If it is at all possible, the baby should be taken out of the hot city during the summer; if not, he should be kept in the parks or recreation piers or taken for day trips into the country or seashore. Care must be taken that the abdomen is covered with a woolen band; straight flannel bands are best for babies under two months old. Mixed silk and wool knitted bands with shoulder straps should be worn up to at least the third year. This and a diaper with a thin cotton slip and light silk and woolen stockings pinned to the napkin constitute enough clothing for an excessively hot day. On cooler days a gauze shirt and thin flannel petticoat may be added.

Draughts should be guarded against; also sudden changes in the weather, all sudden chilling of the body surface. Frequent cool sponge baths with a little alcohol or bicarbonate of soda in the tepid water should be given. Boiled water which has been cooled should be given between each meal. The greatest care in cleaning bottles and nipples and in handling everything that belongs to baby should be exerted.

If possible a breast-fed baby should not be weaned in the middle of summer; it should preferably be done before the hot weather. One should make an effort to obtain the very best milk for the baby, and even then it is sometimes safer to pasteurize it while the excessive heat lasts unless certified milk can be had. The strength of the formulas should not be very rapidly increased in summer; one should go slowly and be satisfied with a smaller gain in weight. A good plan on very hot days is to pour out one or even two ounces of the food from each bottle of milk and substitute the same amount of boiled water, or give

one meal of gruel or mutton broth free from fat and gruel equal parts in place of one of the milk feedings. A breast-fed baby may be given the barley water or boiled water just before nursing.

At the *very first sign of indigestion* a dose of castor oil should be given, all milk stopped until the baby is again perfectly normal.

Treatment.—When an attack of “summer complaint” has actually set in, the child should be kept quietly in bed in a cool room when in the house, but every minute possible he should spend out of doors in some shady spot where the breezes can reach him. His feet and abdomen must be well protected so he will not become chilled. He should not be held in hot arms nor should one walk the floor with him; this sort of thing is both heating and exciting. If the baby is in the city he should be taken into the country or to the seashore if possible; a change of air will many times break up an attack. After each movement the buttocks should be washed off with pure olive oil, then powdered with a pure toilet powder. The one we used in The Babies’ Hospital of New York City was as follows:

One ounce of starch.

One ounce of talcum.

One-fourth ounce of boric acid powder.

All should be well mixed together.

The moment a diaper is wet or soiled it must be removed and placed in the pail of disinfectant and boiled before being used again.

As to the food, all milk should be stopped at once, either

breast milk or bottle milk and nothing but cool boiled water or barley water should be given in small amounts, one-half or one ounce every two hours at first, or albumen water may be given in the same way if the stomach is very irritable. This will often be retained better than anything else. When the temperature is reduced and the frequency of the stools and vomiting a little less (usually after twenty-four or forty-eight hours) a little mutton broth and barley or rice water may be tried; next whey may be added to the barley water or whey and imperial granum water; next one teaspoonful of whole milk (not cream) may be tried with either four ounces of granum or barley water. Following this, little by little, more milk should be added until the original formula is reached. Casein or protein milk may be used here sometimes with advantage.

In the case of breast-fed babies the breast may be resumed at the end of twenty-four hours as a rule but given *after* the barley or boiled water, and only for three or five minutes at first, gradually increasing the length of the nursing as the child improves. If at any time, however, the temperature goes up or the diarrhea increases the milk must again be stopped. One should "make haste slowly" in these cases, not forgetting to give boiled water in small doses, but often; the baby is losing so much water from his tissues by the frequent thin movements that this must be made up in some way.

Older children should have very much the same treatment; no milk whatever at first, but thicker gruels and clear broths. When milk is again begun it may be scalded and added gradually to the gruels.

As usual in the case of babies, the medicine given is of secondary importance to the correct management of the food, but something to clear the alimentary tract must be given here. If the stomach will tolerate it a dose of castor oil is the best remedy.

SCHEDULE FOR DOSE OF CASTOR OIL

Age	Amount
Under 1 year.....	1 teaspoonful
1 year—2 years.....	2 teaspoonfuls
after 2nd year.....	1 tablespoonful

If the stomach is very irritable and the temperature high, calomel may be needed in place of the castor oil.

SCHEDULE FOR DOSE OF CALOMEL

Age	Amount	Time
under 2 years.....	$\frac{1}{10}$ grain.....	every hour, for 10 doses
2 years or older.....	$\frac{1}{5}$ grain.....	every hour, for 6 or 8 doses

If the stools are not frequent after the calomel, the milk or the citrate of magnesia may be given to carry off the medicine but usually with babies and young children this is not required.

Never under any circumstances should opium, as paregoric or in any other form, be given until the bowels have been thoroughly cleared out; these drugs lock the poison in the system and prevent nature from ridding the intestines of it. Paregoric may be needed afterwards if the physician thinks it advisable, but never should it be allowed early in the attack. One administration of castor oil or calomel may not be enough; if the temperature becomes higher and undigested food continues to appear in the stools the dose should be repeated.

The day following the taking of castor oil or calomel, spiced syrup of rhubarb, in small repeated doses, is often very beneficial. The usual doses are given here:

SCHEDULE FOR SPICED SYRUP OF RHUBARB

Age	Amount	Time
under 6 months.....	5 drops.....	every 3 hours, for 6 or 8 doses
6 months—1 year.....	10 drops.....	every 3 hours, for 6 or 8 doses
1—2 years.....	20 drops.....	every 3 hours, for 6 or 8 doses

Should the baby vomit this medicine it must be discontinued, but if given midway between meals when the stomach is comparatively empty it will usually be retained. Preparations of bismuth in different forms and various chalk mixtures are prescribed by many physicians and are sometimes needed if the stomach can bear them. The bismuth mixtures will turn the stools black. Opium as paregoric, Dover's powder, etc., should be given only on written prescriptions from the attending physician. These drugs check the excessive action of the bowels and relieve pain but are dangerous unless given by a skilled person who can watch the results daily. Irrigating the bowels with salt solution is often helpful. For methods of doing this see pages 66-68.

When there is much prostration it may be necessary to give stimulants of some kind. Liquid peptonoid contains alcohol and is a food as well as a stimulant; therefore it is often valuable in these cases. Brandy added to the albumen water in proportions of one teaspoonful to eight ounces is also good, or if the child seems very weak it may be given in cold water, one part of the brandy to six or eight of the water. It is a good plan to put one-half ounce of brandy and four ounces of cold water into

a corked bottle, place near the ice and give it to the baby every hour or two in teaspoonful doses. This amount will last for twenty-four hours. It is best not to add sugar, but if the child refuses it a few grains may be added.

To control the fever, alcohol sponge baths, *not medicine*, should be given, and if the fever is high, the baby restless with signs of convulsions or extreme nervousness, an ice bag placed at the head will often quiet the child.

CHOLERA INFANTUM

This is a disease that strikes terror to every mother's heart, and it is, in fact, one of the most serious intestinal diseases of infancy. It is not as common as some believe; many cases of simple diarrhea are wrongly called cholera infantum. The true disease resembles real cholera and is met with in young babies—never over three years of age and generally under one year.

Causes.—It occurs in summer and may attack a healthy child or one who is already weakened by some other form of diarrhea. It should be looked upon as an acute poisoning of the system and is usually caused by impure milk.

Symptoms.—The beginning of the disease is very sudden and violent in the extreme. The vomiting is severe at first, consisting of food, then thin watery fluid with some mucus. It is often almost incessant. The diarrhea soon begins, the stools being composed of thin, colorless water called "rice water stools" and having a musty odor. These may be so frequent as to be almost constant, it being impossible to keep count of them. The temperature is

usually very high and may even reach 107° or 108° F. The face is drawn and sunken, the fontanel much depressed, the hands and feet cold, the baby limp from exhaustion or moaning and twitching, or there may be convulsions. There is extreme thirst, the breathing and pulse are shallow and weak, the urine is scanty. If these cases are to result fatally the child rarely lives more than two or three days at the most. The loss in weight is great; a baby may easily lose three pounds in as many days. It is not impossible, however, for the little patient to recover, and quick, skillful methods should at once be begun.

Treatment.—All food must be at once stopped and the stomach and bowels quickly washed with normal salt solution at a temperature of 100° or 90° F.: there is no time to wait for calomel or castor oil to act. To control the extremely high temperature, baths are the best means. So that the shock may not be too great, the water should at first be 100° F.; while the baby is in the tub the water may be reduced to 90° or even 85° F. This is best done by allowing cold water to run into the tub gradually, keeping close watch of the bath thermometer, and constantly rubbing. This may be given every three hours and in the interval an icebag should be kept at the child's head. When taken out of the bath, if the feet are very cold and the child extremely weak, a hot water bag should be placed at the feet while the icebag is at the head. Small quantities of brandy and water or egg water may be tried by the mouth, but these are seldom retained and it will be necessary for the doctor to give injections of salt solution under the skin. As the vomiting diminishes the same method in regard to food may be pursued as described in

treating of summer complaint (*see* pages 120-121). Liquid peptonoids, brandy, and iced champagne are as a rule the first fluids tolerated by the stomach.

For medicine, hypodermic injections of morphin and atropin are by far the best; these must be given by the physician or trained nurse.

The return to the usual food must be made even more slowly than in other diarrheal and vomiting cases.

CHRONIC INTESTINAL INDIGESTION

Children of all ages may have this affection, but it is most frequently seen from the sixth month to the second year. Either breast-fed or bottle-fed babies may have it, but bottle-fed infants are by far the more frequent sufferers.

Causes.—Older children who are greatly indulged in the way of sweets, pastry and rich, unwholesome food are frequent sufferers. These children have usually been allowed to come to the family table from the time they could sit up and have been allowed to have "just a taste" of everything they may happen to fancy, tea and coffee not excepted, and with many families they are even given beer!

Symptoms.—The general appearance of a child suffering from intestinal indigestion in its chronic form is typical. He will be stunted in growth as a rule, have an old, rather wizened face with sharp features, a thin body but very prominent abdomen, and the head may be out of all proportion to the rest of the body. The thin little legs will hardly seem capable of supporting the child if he

walks. The color of the face is pale, there being marked anemia; the stools are mostly gray or brown if diarrhea is present, but most of the time there is constipation; the stools are expelled with an effort and are like putty; the constipation may last for months with an occasional attack of diarrhea. In infants the stools show the masses of undigested food more plainly than in older children, either fat, curds, or proteid being seen. The fat curds are softer and often appear in white or yellow masses. More or less mucus may also be found. There is loss in weight or failure to gain, the child remaining stationary for long periods at a time.

There are many nervous symptoms; the children are poor sleepers, and are fretful and whining when awake. The circulation being so poor, both infants and older children usually have very cold hands and feet most of the time. There may be frequent skin eruptions, peculiar flushes, and urticaria or what is known to many as "hives."

Treatment.—The chief factor in the treatment must, of course, be the food. In breast-fed infants the mother's milk must at once be analyzed and if too much fat or too much protein is found the mother's diet must be regulated, as already described on page 109. The baby may be given the boiled water or barley water also. If after a period of a week or two no improvement can be seen it will be best to stop the breast milk, at least partially, and use modified milk, beginning with a weak formula and working up. It is a good plan at first to alternate the breast and the bottle before giving up the breast feedings entirely. No attempt should be made to use a milk mixture

heavy in cream; the plain milk mixtures or those taken from the upper sixteen ounces of a quart bottle of milk will as a rule succeed better than those which are prepared by taking the top three or four ounces from each of several bottles or those from heavy cream. Protein or casein milk is sometimes well borne here.

In bottle-fed babies these same formulas should be tried faithfully, using either boiled water or a dextrinized gruel as the diluent. These dextrinized gruels here give the necessary aid to the feeble digestion of the intestines, as much of the starch in the gruel flours is already digested. "Malt Soup" and protein milk may be tried. Completely peptonized milk may have to be used with these gruels until the intestines are stronger and capable of doing a little work for themselves. All methods of using cow's milk should be tried before giving it up for one of the patent foods.

The general care and hygiene of the child should be as already described on pages 108 and 111.

In the case of older children who have been accustomed to "eat everything" the task is often difficult in the extreme and impossible without the hearty coöperation of the mother. These children are often so thoroughly spoiled by their parents that it is almost impossible to get them to eat proper food. They will eat when they are hungry, and whatever they fancy, and their foolish mothers allow them to do this because they are afraid they will starve! I have seen children fed chiefly on cake and candy because they "wouldn't eat anything else." No wonder their intestines gave out!

Three regular meals a day must be given and a glass of

milk or buttermilk—no cracker—between meals if the child is hungry; otherwise it is best to keep to the three meals alone. These must be served by the clock, no irregularity being allowed. It is a good plan to begin the day by giving these children a glass of water with orange juice in it, unless the bowels are very loose, half an hour before breakfast. Their breakfast should consist of a glass of milk and a soft boiled or coddled egg.

For dinner a cup of clear broth, one or two tablespoonfuls of rare beef scraped fine, chicken or lamb chop with zwieback, or raw oysters may be substituted for the meat once or twice a week, the soft parts alone being given. For dessert, junket, Irish moss, blanc mange or custard without corn starch, and for supper whole wheat toast and milk. As the child improves green vegetables may be gradually added, but not starchy ones like potato or macaroni, and no cereals until the stools are almost normal, as starches must be avoided in these cases. When there is marked constipation it will be advisable to add a teaspoonful of Mellin's Food, or a malt sugar to each glass of milk.

For this same purpose calomel given every week, followed by magnesia or Rochelle salts the next morning, will be beneficial: one-fifth of a grain given every hour for six or eight doses may be given a child of two or three years. For the rhubarb and soda mixture—one-half to one teaspoonful three times daily after meals—is helpful here, especially when there has been an outbreak of hives. Lactobacillin tablets, or the Bulgarian bacilli in other forms, are sometimes very helpful too; other medicine is best left alone.

A substance called indican is nearly always found in the urine of children who have intestinal indigestion, and it is helpful to have the urine tested once a month. The child grows better as the indican grows less. Occasional high irrigations of the intestines are sometimes needed.

With strict attention to detail and wise handling, there is hope of complete recovery, although much time is usually needed to effect a cure.

CHRONIC CONSTIPATION

Chronic constipation is many times simply a symptom of another disease; but again it is so persistent in an apparently well child that it may be looked upon as a disease by itself.

Causes.—Constipation may be caused by some malformation of the bowels, or very often from some muscular weakness, or from lack of secretions of the liver or intestines, or it may be due to the food. Again, habit has much to do with constipation; if children have not been trained early to use a chamber or to go to the closet at a regular time every day, constipation often results.

Symptoms.—Although an infant usually has more than one movement a day, he cannot be said to be constipated if he has one soft, smooth, free stool. A hard, dry stool passed with some effort always means constipation, no matter how many times a day this may occur.

Babies who are constipated are frequently much troubled with gas, and hence colic results. They may be restless, poor sleepers, and have sudden attacks of fever, which can be explained only by lack of a free movement;

this temperature promptly drops when the bowels have moved. From the excessive straining there may often be prolapse of the rectum with some blood, or else hemorrhoids may develop. The tongue is generally coated and the breath foul, especially in the morning; there may be mucus with the hard, dry, lumpy stools. The child is usually pale, and if he is old enough he will complain of headache and be listless at times. This is a very stubborn thing to treat, especially where there is a tendency to the disorder in the family, but some effort must be made at all times to correct it.

Treatment.—In breast-fed babies the trouble is often the most difficult to overcome. It may depend to a great extent on the mother, if she is constipated herself. If such is the case she must drink well-salted cornmeal gruel made thin, a whole bowlful between meals and at bedtime, and eat with each meal bran gems. She must take fruits and drink plenty of water, and take exercise out of doors. She must have at least one free movement of her own bowels every day. If the breast milk shows on analysis that the fat or protein is too low or too high, the usual course to correct these troubles must be followed (*see page 109*). One breast-fed baby who came to me for treatment was made excessively constipated by the mother's tea drinking. She drank quantities of tea every day, as she had been told that it would increase the milk supply. On stopping the tea drinking the baby was soon all right.

Some nursing babies are constipated because they do not get enough in quantity; they have not enough residue in the intestines to pass. The baby should be weighed before and again just after each nursing, to see if he gets

enough food, and if he does not it will be a good plan to alternate the breast with the bottle, thus giving the breasts more time to fill. One ounce of oatmeal gruel may be given a nursing baby before each nursing, sometimes with one or two teaspoonfuls of cream in it. Orange juice, one teaspoonful to one tablespoonful, given in an equal amount of water between meals several times daily may be tried if the baby is over three months old. Olive oil given in teaspoonful doses the first thing in the morning and also between meals, if once a day is not sufficient, will sometimes help. If the fault lies with weakness of the rectal muscles, then try suppositories. The gluten Health Food or a soap stick may be used, and if these are not sufficient, a bulb syringe with one ounce of olive oil and one teaspoonful of glycerin may be used, otherwise a little soapsuds. It is not well to use enemata, however, if it can possibly be avoided, and medicine should be the last resort. By the time the baby is six weeks old he should be able to use a small chamber placed in the mother's lap. The position alone is often enough to overcome constipation. A piece of oiled paper or a small soap stick may be inserted in the rectum at first to start the child and teach him why he is put on the chamber. If this is done directly after a meal at exactly the same time every morning, the results will often be surprising.

In bottle-fed babies the trouble may be due to too weak a formula, the fats and proteins both being too low. The strength of the food should gradually be increased as long as there are no curds seen in the stools and the child does not vomit, but this should be stopped at once if any signs of indigestion are seen. Lime water in the

food is many times the cause of constipation; this may be omitted from the formula and bicarbonate of soda or milk of magnesia tried in its place. Perhaps the diluent used may be the cause of the trouble. Barley and wheat gruels are often constipating; if these are employed oatmeal may be tried in their stead. Malt sugar may be substituted for milk sugar in the formula or one of the malted foods, as Mellin's, in its place. One or two tablespoonfuls to the entire formula may be used. Condensed milk is very apt to be constipating on account of its lack of fat. The orange juice water, etc., may be given here just as in the case of breast-fed babies, also the early training to the use of the chamber should be tried. Beef juice is a laxative to some children: this may be tried either alone or diluted with water, giving at first one teaspoonful three times daily between meals and working up to a tablespoonful.

Older children who are constipated should eat laxative foods, such as bran gems, cornmeal and graham mush, fruit, prune jelly, and drink buttermilk in place of sweet milk. They must be made to take a regular time for the toilet every morning. Out-of-door exercise and abdominal massage will also help these older children. As a last resort a high enema of olive oil may be tried until the regular habit of moving the bowels is established.

In the case of older children, special gymnastic exercises may be tried also.

COLIC

While colic cannot strictly be called a disease it is so distressing a symptom of indigestion that it demands a few words by itself.

Causes.—Anything that produces a collection of gas in the stomach or bowels may cause colic. It may occur with other diseases of the stomach and intestines, but in young infants it is due to indigestion, as a rule. In breast-fed babies constipation in the mother, extreme nervousness or emotional disturbances very often cause colic. The first six months of life, especially the first three months, is the period when colic is most often seen. Decomposed food, which putrefies and causes flatulency and gas in the stomach or intestines, is the chief cause, however. Either the fats or the proteins in the milk may be the cause of colic, but much more frequently the proteins are in excess and cannot be digested. The sugar which has been added to the formula of cow's milk many times causes severe colic. Constipation is a very frequent cause. Some of the cereals, and especially patent foods, often cause bad attacks of colic. Sudden chilling of hands and feet, or exposure to cold, may be the cause also; in these instances there is no gas seen in stomach or intestine—it is more a muscular spasm of these organs.

Symptoms.—Few mothers with young babies escape seeing at least one attack of colic, and are familiar with the symptoms. The attack may come on shortly after the food is taken, or it may occur at intervals between meals. Very often it takes place after the evening meals, especially in a breast-fed baby whose mother is more or less tired at this time. The baby with colic screams lustily and in paroxysms; his face is first red, but may become pale or even blue around the mouth if the attacks last long and are severe. The hands and feet are cold, the legs drawn up; the abdomen, as a rule, very hard and distended, and the

baby works his hands in agony. As soon as the gas is passed either through the mouth or the rectum there is some relief, and the infant usually falls asleep.

Treatment.—For the actual attack of colic, either in breast-fed or bottle-fed babies, warmth must be applied to the abdomen and hands and feet. Hot flannels may be placed on the abdomen or the baby may lie on a hot water bag across the mother's lap. Holding the child up over the shoulder and patting its back will often bring up the gas. Warm mittens and wool stockings should be put on the hands and feet, and a hot water bag placed at the feet. No food must be given during or directly after an attack, as this only increases the pain.

If the gas is mostly in the stomach an ounce of hot water may help to bring it up. If this does not do, one-half a soda mint tablet should be added to the hot water, or ten drops of peppermint or a pinch of bicarbonate of soda. If the gas is in the intestines an injection of four or five ounces of warm water will often help expel the gas. If the injection does not help, a long rubber catheter should be worked up as high as it will easily go, and the bowels irrigated with lukewarm water, as described on pages 66-68. Paregoric and such remedies must not be given unless ordered by a doctor. Beware of patent "colic cures."

Besides treating the attack itself the cause of the colic must be sought and treated. In a breast-fed baby, if the mother is nervous and excitable, she must use every effort to control herself. When the attack occurs regularly after the evening meal, and is caused by fatigue in the mother, it would be a good plan to give one bottle meal of a weak

milk formula, or even barley water, in place of the breast feeding. The mother should have her milk tested, if possible, and if the fats or proteins are found at fault, should proceed as already advised on page 109. Hot water, one ounce, with a pinch of bicarbonate of soda in it given about five or ten minutes before a meal, either in breast or bottle-fed babies, may prevent an attack of colic. If the mother is constipated, or is eating food that causes indigestion in herself, she must be treated by a doctor before she can expect her baby to recover. In the case of bottle-fed babies, the formula should be weakened and the intervals between meals made longer, and absolute regularity observed in feeding the baby; if this does not help, the sugar should be left out or greatly lessened in the formula.

Milk sugar or malt sugar usually causes colic less often than cane sugar. If one of the patent foods is being used, it should be stopped and milk tried. If the milk is being modified with barley or oat gruel, a cereal digestive may be substituted, like Cereo, and if this does not do, plain boiled water should be used. Whey or peptonized milk for a time may be tried until the digestive organs grow stronger. Patent food should not be resorted to unless every other known alternative has failed; even a wetnurse, if a good one can be found, should be given a trial first. Milk of magnesia added to the formula, or given in a little hot water, may help also. Tablets or liquid cultures of the Bulgarian bacillus have helped colic in some very severe cases. To be of any real value these cultures must be absolutely fresh. Full directions for giving them generally come with each box.

INTESTINAL PARASITES OR WORMS

Worms are not nearly so common in childhood as the average mother supposes. It is wrong to treat a child for worms simply because he picks his nose, has dark circles under his eyes, or is a restless sleeper.

There are three varieties of worms seen in childhood; the tapeworm, the roundworm, and the threadworm.

Causes.—Eating infected meat, fish, or playing with animals who have the little eggs of the worms in their skin, are the most frequent causes of worms in childhood.

Tapeworm

This worm may be fifteen or thirty feet long, and is made up of very little segments and a head, which are a dirty white in color.

Symptoms.—The only positive symptom is finding the pieces of the worm in the stools. There may be bad breath, anemia, a great appetite, or sometimes a very poor one, attack of colic, or diarrhea. Sometimes there are no general symptoms.

Treatment.—The child must have an empty stomach before the treatment can be begun; therefore, he should have a light supper of broth and a dose of castor oil the previous night. The next morning he must have no breakfast, but be given a capsule containing fifteen minims of male fern every hour, for four doses; then one hour after the last dose a tablespoonful of castor oil must be given. Within the next few hours the worm will generally be found in the stools. Great care must be taken to hunt for

the head of the worm, for unless this is found the worm will grow again.

Roundworm

This worm is the one most frequently met with in children. It is pinkish in color and resembles the ordinary garden worm, but is pointed at each end; it is from five to ten inches long. Where one of these worms has been found others are nearly always present. They have a great tendency to wander, and may get into the stomach, mouth, nose, ear, windpipe, and bile ducts.

Symptoms.—There may be absolutely no symptoms, the worms being simply found in the stools, or there may be signs of indigestion, irritability, restless sleep, grinding the teeth, and other nervous symptoms, or even convulsions. It is important to remember that these signs do not invariably mean worms. When worms are suspected the stools should be examined under the microscope for the eggs, and if any are found the treatment begun.

Treatment.—The medicine must be given on an empty stomach the first thing in the morning in the same manner as in the case of the tapeworm. The drug most used is called santonin; this may be given with an equal amount of milk sugar, and should be mixed into a powder.

SCHEDULE FOR DOSE

AGE	SANTONIN	MILK SUGAR
Under two years.....	1 grain.....	1 grain
Two to four years.....	1½ grains.....	1½ grains
Four years or older.....	2 grains.....	2 grains

Two hours after this a tablespoonful of castor oil may be given, and the child allowed to have a liquid food, as broth, about an hour after this. If worms are passed it is well to repeat the treatment in three days; then again in about one week if more are seen. This treatment for tape-worms and roundworms is weakening, and the child should be kept in bed while it is being given. A doctor should have charge of the child in both cases.

Threadworms or Pinworms

These worms resemble a short piece of white thread and are from one-third to one-half an inch long. They taper toward the tail. They are found chiefly in the rectum and lower part of the intestine, and many times may be seen about the anus and genital organs; they are usually found in large numbers, and may be seen rolled in balls. They are very irritating and may cause a catarrhal condition of the lower bowel, producing much mucus.

Symptoms.—The chief and most annoying symptom is itching of the anus and surrounding parts. This is always worse at night when the worms are most active and come out of the intestine in large numbers to the surrounding parts. The child may wish to pass urine frequently, or have a white discharge from the vulva excited by the worms, or the bad habit of masturbation may be formed. Large quantities of mucus are often discharged from the bowels, and the rectum may even come down or prolapse. There may be some nervous symptoms, and even convulsions, but these are not so common as with the roundworms.

Treatment.—Here we rely chiefly upon injections for treatment. The child should be prepared as for irrigation of the bowels (*see* pages 66-68), and a pint of warm water in which one teaspoonful of borax has been dissolved, should be injected through a long rubber catheter. After this has all been passed, another injection of the same amount of either lime water, infusion of quassia, garlic, or a solution of bichlorid of mercury—one part to 10,000 parts of water—should be retained for half an hour, the anus being held together so the child cannot expel it until the time is over. This should be done every other night at bedtime for about one week. If signs of the worms are still present, the castor oil santonin treatment, already described in the treatment of roundworms, should be given in addition to the injection.

BILIUS ATTACKS

Before going further it may be well here to describe the “bilius” attacks to which some children are so subject. The trouble is not alone in the stomach, but affects the upper part of the intestines as well as the bile ducts. The inflammation extends from the upper intestine into the duct, which swells and causes jaundice.

Symptoms.—The vomiting that occurs is the most distressing symptom; it may be so severe as to greatly prostrate the child. The bowels are at first very constipated, and when there is a stool it is very light colored, looking like clay. The urine is often very dark. The whites of the eyes and then the skin become yellow; there is some fever, loss of appetite, and in an older child often head-

ache and dizziness. Children under two years of age rarely if ever have these attacks.

Treatment.—While the vomiting lasts only water or Vichy should be given. No fats of any kind should be allowed and very little starches. Clear broths, absolutely fat-free, may be given in small quantities. It is best not to give milk for at least two days, and then to dilute it with lime water, or, better still, with Vichy; buttermilk may be taken with advantage. Orange juice and raw, scraped beef sandwiches may be given on the second or third day after the vomiting has stopped. No eggs, butter, or cream should be allowed for ten days or two weeks. The yellow color of the eyes and skin may be noticed for two weeks.

For medicine it is well to give calomel in small doses.

SCHEDULE FOR DOSE OF CALOMEL

Age	Amount	Time
2 years.....	$\frac{1}{4}$ grain.....	every hour, for 4 doses
After 2nd year	$\frac{1}{4}$ grain.....	every hour, for 6 doses

The morning after the calomel either one teaspoonful of Rochelle salts in two ounces of water, or half a glass of citrate of magnesia should be given. Never give orange juice while calomel is being taken. To empty the bowels quickly a high enema is best, and will sometimes stop the vomiting more quickly. After the third or fourth day I like to give the rhubarb and soda mixture for a few days or a week. From one-half to one teaspoonful may be given three times daily.

Children subject to these attacks should be made to drink a glass of water or Vichy before breakfast each

morning; orange juice added to the water is often helpful. Rich, heavy foods, especially chocolate in any form, should be absolutely prohibited from the diet at all times, and eggs are best used sparingly.

CHAPTER VI

DISEASES OF FAULTY NUTRITION AND GENERAL DISEASES

SCURVY

THIS is a disease more often associated with sailors than with babies, in the minds of the laity; however, it is not uncommonly met with in infants and it is due to the same general cause as in the case of sailors—lack of fresh food.

Causes.—When a baby has had breast milk or correctly modified cow's milk given raw, there is very little chance of scurvy developing. It is usually caused by a patent food or by sterilized milk or sometimes by pasteurized milk. Patent foods, especially if they are mixed with water, and no fresh milk added to them, do not contain the correct elements for the proper growth of the baby, and scurvy often develops. Sterilized milk has been heated to so high a temperature that it is practically "dead food," hence it may cause scurvy, and the same is true of condensed milk if it is used for any length of time. It most often occurs during the first year of life before the baby takes a varied diet.

Symptoms.—About the first thing that a mother is likely to notice in a child with scurvy is that he often cries when

his diapers are being changed or whenever it is necessary to move his legs; this tenderness gradually increases until the baby cannot bear to be touched. There may develop some swelling around the joints or shafts of the long bones and often little hemorrhages apparently under the skin. The pain will frequently be so severe that the child will hold his legs almost rigid, acting as if he were paralyzed.

A very characteristic symptom is the condition of the gums. In the mild cases they are swollen and brighter red with a dark reddish or purple line near the teeth, if the child has cut any. In bad cases they are dark red or purplish and very soft and spongy; later they may ulcerate. On close examination tiny hemorrhages may be seen in the gums.

As the case advances, minute hemorrhages may be seen under the skin in other parts of the body—under the eyes, or on the thighs—and there may even be hemorrhages from the nose, mouth and stomach.

By persons who have not treated many babies this disease is often mistaken for rheumatism or a form of paralysis. Rheumatism very rarely occurs in a baby under two years of age, and the gums are not involved.

In cases of paralysis the legs cannot be moved at all by the child himself, while in scurvy it is *possible* for him to move them but simply painful. When taken in hand early and correctly treated scurvy may be cured in a few days or a week but if it has been wrongly treated, for rheumatism or paralysis, it may take weeks and months to finally cure the child, or death may result.

Treatment.—The treatment is almost entirely dietetic. If the child has been fed on a patent food or sterilized

milk these must at once be stopped, and cow's milk, given raw but diluted with water or a gruel if the child is under one year of age, must replace them. In addition to this beef juice and orange juice should be given. Even a young baby may take one ounce of orange juice between meals, a teaspoonful at a time if necessary. Beef juice may be given in the same amounts. A child over one year of age may take one-half to one ounce at a time of beef juice, and orange juice three or four times daily.

Generally the change in food is all that is needed, and at the end of twenty-four hours the improvement is marked. By the third or fourth day very little pain will be noticed and the recovery is then rapid.

Later the child may need an iron tonic like hemaboloids or peptomangan which will help to build him up more quickly. Plenty of fresh air and sunshine is needed always.

MARASMUS—MALNUTRITION

Marasmus is a general wasting without any special known cause. It is seen during the first years of babyhood, or early in the second year. It is rare in breast-fed babies unless the mother cannot supply them with really nourishing milk, but very common among bottle-fed infants, especially among the poorer classes.

Causes.—No one distinct cause has yet been found to explain marasmus. It may occur in babies who inherit a weak constitution or have been badly fed; then again it may be seen in infants who have had the best of food and care. We can only regard this as some kind of an affection or poisoning that takes place through the stomach

or bowels and produces the general wasting. Babies in hospitals and institutions are very apt to develop this disease if they are kept there any length of time—it is then spoken of as "hospitalism."

Symptoms.—A typical marasmus baby is a pitiful picture. At first only continued loss in weight, with nothing that can explain it, can be found. As time goes on the fontanel becomes depressed; all the superficial fat disappears; the face becomes pinched and drawn, with a very worried old look, which makes the child appear like a little old man or woman. The skin hangs in folds on the body and is dry and easily irritated and full of wrinkles; the abdomen becomes distended and prominent, and the intestines usually full of gas. The child literally wastes to a skeleton and becomes weaker and weaker until he dies, or more rarely gets better. There is generally a very large appetite, the child being very hungry, because the food it takes does not nourish it. The stools are very variable; sometimes they are green, again yellow or brown; sometimes loose, sometimes constipated, but they usually show some undigested food, although at times a perfectly normal movement will be seen. Nearly always, however, they will have a very bad color. The child is usually very restless and very fretful, acting as though hungry much of the time, and sucking its fingers or anything else it can reach. His head may at times be thrown away back, and the neck stiff, so that one might fancy he had some grave brain trouble. His hands and feet are nearly always cold, his temperature below normal, and the child very pale, with deep lines around his mouth, which is sometimes almost blue. Death may take place slowly and from the

general wasting alone, or there may be convulsions or some complicating disease. A few cases recover, but it takes many months as a rule. These marasmus babies, however, when they do recover, are as well as other children. I have in mind a number now who have become unusually well-developed and plump children.

Treatment.—This lies more with the mother than with the doctor; no detail is too small to be considered in taking care of such a child. A complete change of air is sometimes helpful. If one lives in the city a change into the country may help and give the baby a needed start. Personally I have found that these babies do much better in the inland country or moderately high mountains, than at the seashore where there is always more or less dampness. As much time as possible must be spent out of doors, but in winter care must be taken not to let the child get chilled in his carriage. A hot water bag should be a pretty constant companion of a marasmus baby. The child's position in his crib or carriage should be often changed so that bedsores will not develop; these are very apt to occur. If they have, the mother should make a ring, like a doughnut, of cotton, and wind a bandage around it to keep it in place, keeping it over the sore parts, so that no further pressure can be made upon the sore. The latter must be bathed gently and a dusting powder of bismuth or aristol kept on it, or a little flexible collodion.

Unless exceedingly weak these babies need a lukewarm tub bath every day, and a sponge bath in the evening at bedtime. A dash of cold water down the spine, followed by a gentle but brisk rubbing, may help the circulation a little, but if the baby gets blue and not red after this

treatment it should not be repeated. Massage with olive oil or cocoa butter after the bath is also helpful, and is quite as beneficial as cod liver oil rubs. The latter are so disagreeable, and stain the clothing so badly, that it does not seem wise to use them when other things will do as well.

Thrush or sprue is so apt to develop in these cases that the most scrupulous care must be given the mouth, and all things used in preparing the baby's food. The baby's mouth should be gently washed with a saturated solution of boric acid after each meal. The rubber nipples must be frequently renewed and scrubbed inside and out with scalding water and a brush every day. After each bottle they must be well rinsed with cold water, and kept in a covered glass containing a pinch of borax or bicarbonate of soda. The nursing bottles must be rinsed with cold water at once on becoming empty, a pinch of bicarbonate of soda added, and once daily they must be washed with soap and water and a bottle brush and then well boiled before the fresh food is put into them.

The nursery must be the largest and best ventilated room in the house; plenty of sunshine and fresh air are essential in the house as well as out of doors. In cool weather sun baths are helpful. The baby's eyes must be protected from the glare, and the whole of the body exposed to the sun's rays for a half an hour or so at a time. If the room can be made warm enough the bath may be given without clothing, but if not, then the clothes may be left on and the sun bath given in this way.

The bowels must be well looked after. Every week at least it is a good plan to give a teaspoonful of castor oil.

An occasional dose of milk of magnesia should also be given, or high rectal irrigations of lukewarm salt and water, one teaspoonful of the salt to a quart of water. These measures help to clear the intestines of any poisonous material, and get them ready to absorb fresh food. Great care must be given to the buttocks, as they very easily become chafed; after each movement they should be washed with olive oil, and a pure talcum powder or stearate of zinc dusted on, or else a salve composed of two teaspoonfuls of oxid of zinc, two teaspoonfuls of starch, one ounce of vaselin—all well mixed and spread on soft linen. The diapers themselves must be very carefully washed and boiled, then hung in the air and sun to dry.

It is almost impossible to lay down any rule in regard to the food itself: what will suit one baby will not suit another. A good wetnurse is sometimes the only solution of the feeding problem. Absolute regularity must be observed; there is no more fatal mistake than to overfeed a marasmus baby because he seems hungry and chews his hands. A little food that is assimilated will do much more good than a quantity that cannot be absorbed but must be left in the intestines to poison the child. A three-hour interval should be the rule, and the modified milk formulas, as given on page 20, should be tried, beginning with a dilute formula and working up little by little; should this not prove satisfactory, two or three ounces of a strong formula may be tried.

Sometimes these babies can digest a *little* of a strong food better than they can a larger amount of a weak formula. Each individual baby differs here, and only patient experiment can bring results. These babies often

do better on the plain milk mixtures than on the high cream mixtures, and it is often better to use some cereal than boiled water as a diluent. This cereal may be dextrinized if it is found that the child digests it better, or some form of malt may be added. Protein milk often gives these babies a start (*see page 28*).

Beef juice and orange juice may also be given, and when the child is a year old bacon may be sucked. A coddled egg, given in very small quantities at first, may be tried with a baby over nine months old; or half a raw egg may be stirred up in the baby's bottle once daily if it causes no signs of acute indigestion. Our aim to give all that can be absorbed, but *no more*, must be kept in mind.

A marasmus child will often do much better when it can take food other than milk, hence these babies may be given semisolids a little earlier than the average normal child. Broths well cooked, cereals, coddled egg, zwieback soaked in milk or water, may be begun in small quantities after the ninth month, and raw scraped beef, only a teaspoonful at a time, may be tried with an eleven-months-old child. The stools must be carefully watched, however, and if the food is passed much undigested, this semisolid diet should not be repeated for some time at least.

It should not be supposed that drugs will cure a marasmus baby; almost without fail they will simply upset the stomach and do no good. Iron, cod-liver oil, and such medicines may aid the child after the proper food has really begun to make him gain a little, but food absorption must have taken place first. Water given between meals is quite necessary, and should not be forgotten. Diarrhea, constipation, colds, bronchitis, etc., that occur in the

course of marasmus, should be treated as in any other case of the same disease.

RICKETS

Rickets is a chronic disorder of the entire body caused by disordered nutrition. In many cases disease of the bones is most evident but other parts of the body are also much affected. Rickets usually occurs from the sixth month to the second year of a child's life.

Causes.—Two classes of people especially among the poor are prone to have rickets: these are Italians and negroes. For many years rickets was called the English disease, as it was most often seen in England, and very seldom in the United States. Errors in diet are the cause of rickets; bad surroundings, lack of fresh air and sunshine, also greatly help the disease to develop. Breast-fed babies who have been nursed too long or whose mothers are delicate and give them a poor quality of milk, often develop rickets. Bottle-fed babies fed on patent foods, condensed milk, or a poor quality of cow's milk wrongly modified, are frequent victims. There is some element lacking in the food of rachitic children—what it is can only be found out certainly by having the food analyzed, and the results compared with normal breast milk, which is the food intended by nature for the baby.

Symptoms.—The symptoms of rickets are so many and varied that it is best to describe a child who has nearly all of them, but it must be remembered that in some cases the entire group of symptoms may not be present. Let us take for example a baby developing rickets:

At birth the baby is apparently normal, plump, and well-

nourished, with good color. As time goes on the color fades and the baby becomes pale, although he may not get thin. When the time arrives for a baby to begin to hold up his head this child will make no attempt to do so; his muscles are too weak and flabby to make this possible. He is equally backward about trying to sit, stand, and walk alone. In time he will no doubt accomplish all these little feats, but he is months behind the average child. I have seen many rachitic children who could not walk at the age of two years. There is generally a strong tendency to constipation; the skin is easily irritated; the baby perspires very easily, especially in his sleep—the pillow may be very wet after a nap. These babies are very apt to be fretful and restless sleepers.

Generally when a baby is six or eight months old the distinct rachitic signs in the bones may be seen. The first of these is usually the little lumps or "beads" on the ribs: a whole row or chain of these can be felt and soon plainly seen, and they are generally called "the rachitic rosary." At the wrists, knees, and ankles, the ends of the bones soon become enlarged, resembling knobs. The shape of the head assumes a peculiar form; it is very large in proportion to the rest of the body, being rather square, very flat on top, with bumps on the sides and upper part of the forehead. The fontanel, instead of showing a tendency to close as the baby reaches his eighteenth month, remains wide open until a very much later period—sometimes until the child is three years old. There are often soft spots in the skull at different places. The teeth are very late in coming; many times none appear until the child is a year old; then they decay early.

Little by little the soft yielding bones become molded out of shape so that the chest assumes a typical form often known as "pigeon breasted," or the shape may resemble a violin, and the child may be said to have a "violin chest." The spine is soft and easily bent out of shape, as all the ligaments and muscles are weak as well as the bones; the back may be therefore much bent, or the spine appear crooked, but it is not rigid and can be overcome by bending the child backward when he is still young. A little later the child develops bow legs or knock knees, or both. The arms may be bent very much like the legs. The bones of the pelvis also often become pressed out of shape but are not noticed much at this time. If the child is a girl this may give rise to serious trouble if she ever becomes pregnant in later life. One of the most striking symptoms is the appearance of the abdomen; the muscles are so weak they easily become stretched, and the abdomen is distended and bulges very much so that one might think the child to be very fat and plump, but in reality he is thin.

The mucous membranes as well as the bones and muscles are weakened by rickets and very irritable, so that the child is exceedingly likely to have bad colds, catarrh, bronchitis, pneumonia, intestinal disturbances, and stomach troubles. The ordinary infectious diseases of childhood take a much stronger hold on a child already weakened by rickets. Numerous nervous symptoms are seen; spasms and even general convulsions are not at all rare, although they do not invariably occur.

After a child has reached the age of two years the tendency is to recover from rickets slowly, as he then

eats a greater variety of food; but if the deformities are marked in the bones these may remain the same throughout life.

Treatment.—As prevention is so much better than cure, every mother should do all in her power to understand the principles of infant feeding, and so not allow her baby to develop rickets through ignorance on her part.

When the disease has set in, however, and has been recognized, much can be done to stop its progress. In the first place the food must be changed. The breast-fed baby must have an analysis made of the milk, and whatever element is lacking must be supplied according to the rules already laid down on page 109. If the mother still wishes to nurse her child and the milk shows any signs of improving she may continue to do so a while longer, if she alternates her breast milk with a good formula of cow's milk.

If the child has reached its tenth or twelfth month it will be found best not to waste time in trying to build up the breast milk, but to wean the child and give him modified milk and other articles of diet suited to his age, such as beef juice, orange juice, coddled egg, clear mutton and chicken broths, and cereals cooked several hours. Broiled bacon to suck may also be given a year-old child with benefit. As bottle-fed babies who develop rickets are usually being fed on either condensed milk or some proprietary food, these foods must be stopped at once and either cow's milk properly modified or plain should be substituted if the child is over one year old. It is best not to pasteurize the milk, if reasonably pure milk can be found.

The daily life of the rachitic child must be carefully regulated; he must be treated with great regularity, and

an exact schedule should be followed. He must sleep in well-ventilated rooms full of fresh air and sunshine, and yet he must be protected from direct draughts. He must spend every minute possible in the fresh air, and on days with high winds, or when it is below 20° F. and damp, he should be given a regular airing in his nursery, dressed as for going out of doors, and with the windows lowered from the top. The baths must not be given too warm, as there is greater danger of catching cold after them. The child may be placed in the tub with the water at 98° F. and cold water gradually added until it reaches 90° F. Sea salt dissolved in the bath water (one cupful to each gallon) is good, and often beneficial for an irritated skin or excessive perspiration.

Besides the daily bath the child should have a sponge bath on retiring. A good rubbing, or better still, massage, should be given after the bath to stimulate the circulation. A little cocoa butter may be used on the hands for this rub. Constipation should be treated as described on pages 131-133, and other conditions as they arise.

Food and good hygiene are, of course, the chief factors in treating rickets, but if the child's stomach can stand them a few medicines may help along a little. Only one thing should be given at a time, however. In cold weather some preparation of cod-liver oil may be tried. I rather like the maltine with cod-liver oil, as this helps to overcome constipation a little also. One or two teaspoonfuls three times daily are usually given, but this must be stopped if there is the least digestive disturbance. Phosphorus is given by some, but I have never seen any very marked results from it. The syrup of hypophosphites of

lime and soda without strychnin may help at times. For pallor or anemia, a tonic with iron in it, like hemaboloids



FIG. 15.—SHOE TO PREVENT OR CURE BOW-LEGS IN CHILDREN.
(By courtesy of Best & Co., New York.)

or peptomangan, is beneficial. It is a good plan to alternate with the above-mentioned medicines so that one is



FIG. 16.—“TOE-IN” SHOE. (By courtesy of Best & Co., New York.)

used for a month or so, then another taken; but oils must not be given in hot weather.

For the bow legs try shoes especially made for this condition; they are built up on one side of the sole and help mild cases. For the severer forms braces may help some, but where the deformity of arms or legs is very marked and

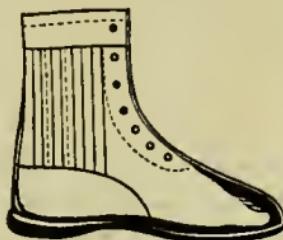


FIG. 17.—ANKLE AND ARCH SUPPORTING SHOES. (By courtesy of Best & Co., New York.)

does not show a tendency to improve at all a surgical operation will be found to be the only means of relief, and as this is not a serious one, it is the duty of the parents to have it performed. It will alter the child's life in later years and prevent much suffering. Other deformities of the legs and feet may sometimes be helped by shoes like those shown in Figs. 16 and 17.

RHEUMATISM

Rheumatism is so painful and many times so serious a disease that all parents who have had it are most anxious that their children should escape this inheritance.

Causes.—In a very large percentage of cases the disease may be traced directly to former generations; hence this inherited tendency is one of the chief causes of rheumatism. Exposure to dampness and cold will also cause

rheumatism, especially where the child has a tendency to it. Children under five years of age are not apt to have this disease, and cases under three years of age are very rare; therefore when a child under this age has sore joints and cries with pain when handled, the mother should not at once think of rheumatism—a young baby affected in this way in all probability has *scurvy* and not rheumatism. Strange as it may seem, even physicians will frequently mistake these conditions.

Prevention and Treatment.—In a family with rheumatic tendencies the baby should be carefully guarded from the very first, for although he will not show any symptoms of the disease during the first few years of his life it may appear in full force later in life.

He should not be loaded down with red flannel and kept in the house all the time, but should wear medium-weight flannels in winter and very light-weight ones in summer. Exposure to dampness should most carefully be avoided, but on sunny days the child should remain outdoors as much as possible. He should get plenty of pure air and oxygen in his lungs and not be kept in close, stuffy rooms filled with tobacco smoke and stale air which has already been breathed many times by grown people.

In regard to food for the young baby: proprietary foods should be avoided and either good breast milk or cow's milk properly modified should be given. As the child grows older it is best to avoid much beef juice, red meat, and sweets, as these foods do not agree very well with children who have a strong tendency to rheumatism. Such children should be taught to take cereals without sugar, fruit juices, vegetables, and vegetable purées for soups in

place of animal broths. A little broiled or baked fresh fish once a week in place of so much meat is a good plan to follow; if perfectly fresh, either clam or oyster broths may be given occasionally when in season and will make a pleasant variation with the vegetable purées. Zwieback and stale whole wheat bread should be given in preference to crackers in large quantities, and cake and candies should be forbidden except in very small amounts as a rare treat. There has been prepared a fine flour made from a preparation of beans; it is called legume flour and is exceedingly nourishing, easy to digest, and when flavored with a little bacon it is very palatable; with an older child it may be given as a soup, and with a young baby as a gruel. Milk and cocoa may be taken, but chocolate must be avoided here as with other children, as it is too rich and easily upsets the stomach. Buttermilk may be used.

Plenty of pure, fresh water must be given, and until the child is two or three years old this should be boiled. It is best to give it between the regular meals. Great care must be taken to keep the bowels regular and the kidneys in good working order. If the urine passed looks at all dark, or leaves a stain on the napkin, a specimen should be sent to the doctor for examination. Such children should never be allowed to become constipated. They should be trained to have a regular movement of the bowels each morning at a fixed time. The use of a small chamber may be begun as early as the second month. It should be placed in the mother's lap and the baby supported by her and held on the small chamber. A mother from Scotland wrote to me a short time ago that all babies in her country were taught this at a very early age. She

said that one of the very first things the nurse asks for is a small chamber and some Canton flannel to make a little ring to place over the rim of the vessel. She also said that constipated babies in Scotland are very rarely seen, and that this is probably due to the great care taken in making them form a regular habit of moving the bowels at a certain time each day and to the position taken when they are held on the small chamber.

An older child may use the nursery chair until he is about two years old; then it is best to teach him to use a small seat which may be placed on the closet, but his feet should be supported by means of a box or other contrivance and not allowed to dangle in the air.

All this is not at all impossible or even very difficult to teach the average child. It requires a little patience at first, but in most cases it can be accomplished, and a great deal of time and trouble will then be saved both mother and child. Well-trained babies nowadays are not supposed to soil their napkins after the second month, nor do they, and in some instances they cease even earlier.

The above advice on constipation has a great deal to do with the successful care of children who inherit a tendency to rheumatism, for if a child is constipated all the poisonous substances remain in the body and get into the system instead of being thrown off as they should be, and rheumatism is to a great extent a poison.

Often children with rheumatic tendency will have sore throats from no apparent cause. The throat is often swollen, red, and quite painful, and is made worse by exposure to cold or damp. A child with such a sore throat will do much better and recover much more quickly if

he is put to bed for a day or two, so that there is no danger of draughts from sitting on the floor or running about in cold halls. The temperature can be kept much more even and the child can be made contented with a few toys and books and propped up with pillows so as to be comfortable. He should also wear a little flannel jacket over his nightdress when the upper part of his body is outside of the bedclothes.

Rheumatic children frequently have "stiff neck," and they often suffer a good deal of pain from this. They should be taken to a good physician and receive the proper treatment and not be experimented with at home, rubbed with patent remedies, etc. These children are also subject to various red rashes which come and go without apparent cause and are often a puzzle to the mother and even to the physician if he has not made a careful study of the little patient and his family history.

"Growing pains" are also very prevalent among this group of little patients, and they should not be ignored, for many times they are the forerunners of very painful attacks of rheumatism; and as the heart is so apt to become affected where there is rheumatism, serious trouble may begin before the mother is aware of it.

Children with a rheumatic tendency frequently have chorea, or what is commonly known as "St. Vitus's dance"; hence they should never be forced and pushed in school; and at the first sign of this trouble they should be taken out of school and be made to live a quiet life in the country, if possible, until all disagreeable symptoms have ceased.

From what has been said it will be seen that the very

earliest signs of rheumatism in children are not at all like those in grown people. Mothers should be on their guard in caring for their children if there is a history of rheumatism in the family; when the child actually has the disease he should at once be taken to a doctor and be very carefully watched by the latter. It is not the disease itself that is so very dangerous, but trouble with the heart may at any time set in, and when this once gets started it can never be entirely cured.

CHAPTER VII

MOST COMMON DISEASES OF THE RESPIRATORY SYSTEM

DISEASES OF THE NASAL CAVITIES

NOSEBLEED

NOSEBLEED in infancy, except in children who have syphilis, is rather a rare disease, but in older children it is rather common; boys are more subject to it than are girls. Girls, however, often have severe nosebleeds about the time they mature.

Causes.—Delicate children who have been fussed over too much and who have not had enough fresh air often have nosebleed. It often occurs with the contagious diseases, and with anemia or diseases of the heart and blood vessels. A knock or blow or picking at the nose may often bring on a nosebleed; in nervous children any great excitement may cause it.

Symptoms.—Sometimes a child can tell when he is about to have a nosebleed by a feeling of fullness in his head, and may be relieved when the bleeding takes place. The blood usually comes rather slowly and from one nostril, although it may come from both. The bleeding usually lasts from ten to thirty minutes.

Treatment.—This depends somewhat upon the cause. If the child is run down and miserable he should be built up by means of nourishing food and fresh air, and if at school, should be given a leave of absence for a time and made to live out of doors as much as possible. Foods that contain iron, such as spinach, carrots, grape juice, grape and cranberry jellies, are of benefit if the child is anemic. Iron given in easily assimilated forms, as hemaboloids and peptomangan, may also be needed.

For the bleeding itself the child should be made to keep perfectly quiet, sitting up, and the nose held between the thumb and finger while ice is placed over the base of the nose and cool cloths or ice wrapped in cotton applied over the nape of the neck, or a small piece held in the mouth. All tight clothing, especially collars, should be loosened. The old-fashioned remedy of dropping a key down the back is not a bad one. Packing soft paper under the upper lip in a firm wad and holding the arms above the head may also be tried. If all the above measures are of no avail, a physician will have to plug the nostrils. The child should be cautioned not to blow his nose for some time after a nosebleed, as this is liable to bring on another attack.

FOREIGN BODIES IN THE NOSE

Children often put buttons, peas, or other small objects up the nose. The mother should hold the free nostril firmly and then make the child blow hard, so that all the air will be forced out of the inside where the object has lodged, and the article itself dislodged. If this does not help a doctor should be called, for if the mother pokes at the article she is apt to push it further back.

ACUTE RHINITIS, ACUTE CATARRH OR "COLDS"

This is one of the common diseases of the respiratory system found in children.

Causes.—A tendency to this condition is often inherited either from one or both parents; again it originates with the child himself, because he is treated like a little hot-house plant by an overanxious mother who keeps him in a hot, close room, afraid of every breath of fresh air. Being dressed too warmly is another cause of this frequent disease. Children exercise a great deal and then perspire if they are loaded down with too much clothing—the least draught is then felt on the overheated body; the child begins to sneeze, and he has "caught cold" or has acute catarrh. Sometimes children who are rachitic have a series of attacks of catarrh until it becomes chronic in form. Again, young babies, who are teething, may have this disease frequently. Enlarged tonsils and adenoid growths are often both a cause and a result of catarrh, the secretions being retained by these little bodies, and in this way causing a recurrence of attacks. After the removal of the growths, the child has fewer colds.

One form of acute catarrh is undoubtedly contagious, being caused by a little germ; if, for instance, one child in a family has an attack and another child uses the same handkerchief there is great probability of the second child's contracting the disease, or if susceptible, he may contract it by simply being in the same room near the affected child. I have seen this disease run through an entire family. Sometimes it is difficult to tell an attack of acute catarrh from measles in its earliest stage, for the latter dis-

ease begins by a more or less profuse discharge from the nose and eyes.

Symptoms.—The symptoms of acute catarrh are known to every mother. There is a rather thin discharge from the nose and often from the eyes; that from the nose usually grows thicker gradually, the nose being very much stopped up, the child having to do most of his breathing through his mouth. Sometimes the obstruction is so great that nursing is seriously interfered with, for the baby cannot nurse and breathe through his mouth at the same time. The nostrils and upper lip are often chafed by means of the discharge, there is frequent sneezing, and sometimes slight fever, the temperature seldom going over 102° F. unless the attack is an unusually severe one, or is complicated by some other condition. If the throat is examined it will usually be found more red than normal; the eyes may also look rather red and even a little swollen, while there is frequently a slight deafness if the inflammation extends into the eustachian tubes. There may be even an earache, and later a discharge from one or both ears. Hoarseness and some cough are frequent symptoms. In the case of babies and children too young to expectorate, mucus will be found in the stools, and sometimes vomiting will be caused by the excess of mucus secreted.

The mild form of acute catarrh lasts from one to two days, and the severe form from one to two weeks. If the discharge is tinged with blood the mother should at once have a culture of it taken, and examined under the microscope by a reliable doctor, for in such a case there may be nasal diphtheria present without the mother suspecting it;

even doctors cannot always tell without this test by the microscope.

Treatment.—The treatment of acute catarrh differs somewhat with the season of the year and with the severity of the attack. It is generally best, however, to keep the child in the house in a room which can be kept at 70° F., but not warmer. The room should be well-ventilated by having the window lowered for at least a short time every day, but all direct draught should be avoided with much care; hence it is much wiser not to allow the child to sit on the floor while at play.

One or two teaspoonfuls of castor oil is an excellent thing to give at the beginning of an attack; it clears the bowels and carries off a good deal of the excess of mucus. Great care must be taken to keep the child's bowels open every day in this condition more than in any other, if he is inclined to be constipated. After the dose of castor oil milk of magnesia or some other mild laxative may be given each day for a short time while the attack lasts.

In spite of the old adage, "stuff a cold and starve a fever," it is better to reduce the baby's food a little at this time. If he is a bottle-fed baby, pour out an ounce of his regular food and add in its place an extra ounce of boiled water, or if an older child, keep him on only such articles of food as it has been found he can most easily digest. While there is fever all solid food should be abandoned and only a diet of milk and broths used.

Medicine is of little value in treating this disease. Sometimes, if given at the very onset of an attack, rhinitis helps a little. The half-strength variety should be used for children under ten years of age and only half of one

of these tablets be given a child under three years of age, every hour. It is best to depend on outward treatment, and the above-mentioned castor oil for babies under a year old.

To cleanse the nose and soften the secretions that may have formed, warm sweet oil or liquid albolene may be used. These may be applied either by means of a small piece of absorbent cotton very firmly twisted on the end of a wooden toothpick, or a regular albolene spray may be used. The nose may be treated in this way three or four times a day if the discharge is very profuse. A little vaselin or boric acid ointment should be rubbed around the nostrils and upper lip to prevent or cure the chafing. If it is absolutely necessary to syringe the child's nose in order that he may nurse, a doctor or nurse should show the mother how to do it, as this is best taught by an object lesson, and may cause a good deal of pain if not properly done. When a cough is present the inhalations of steam (*see pp. 74-77*) should be tried and not cough mixtures that may upset the stomach.

Other treatment for coughs will be given later.

DISEASES OF THE THROAT

CHRONIC CATARRH, ADENOIDS, AND ENLARGED TONSILS

Causes.—Frequent attacks of acute catarrh, inherited tendency, or careless hygiene and large adenoids or tonsils are the usual causes of this disease.

Symptoms.—When a child has chronic catarrh there will generally be noticed an odor issuing from his nose

or mouth: this is especially noticeable in the morning when he arises.

The discharge seen in these cases is thicker than that noticed in the acute form, and unless the child is old enough to frequently clear his nose by blowing it, he is usually exceedingly uncomfortable the greater part of the time. It is in this form of catarrh more than any other that one may fear deafness from the gradual extension of the inflammation through the eustachian tubes into the ear. Many a deaf man or woman has his mother to blame for neglect in procuring the proper treatment for catarrh when he was a small child. It is often thought that the child will outgrow catarrh, and nothing is done for it with the exception of giving cod-liver oil or iron to build him up, when the root of all evil is usually adenoids, and is left untouched.

Treatment.—First of all, therefore, when a child has chronic catarrh, he should be taken to a throat specialist and a thorough examination made of both nose and throat. If adenoid growth or enlarged tonsils are found, they should be removed by an experienced person as soon as possible. If deafness once gets a good start it is very difficult to arrest its progress. While the removal of adenoids has been practiced in the last twenty years more frequently than it once was, it is by no means a fad, as some foolish people tell the young mother. No conscientious physician would advise having these growths removed unless he considered it absolutely necessary for the child's best growth and development. The enlarged tonsils and adenoids prevent the proper amount of air from getting into the child's lungs and aerating his blood. He is there-

fore a pale, delicate looking little person, with hollow chest, and, most frequently, widely open mouth. He is nervous in the day time, and a poor or restless sleeper at night, especially subject to all the diseases of infancy and childhood. After the nose and throat have been properly freed for the passage of air by the removal of these growths, one would scarcely recognize the child: his color is much improved, he sleeps well, breathes through his nose, his lungs begin to expand, his chest to develop, and he is an entirely different sort of a person than he was before the operation.

While a spray of some sort is useful in cleansing the nose and throat in cases of chronic catarrh, it will never result in a cure if the enlarged tonsils and adenoids are still in place.

As previously mentioned, children are very apt to put small objects, such as buttons or peas, up their noses. If these small bodies remain in the nostrils for some time without being discovered, they set up a discharge, which is really a form of catarrh. The discharge in such cases is often quite thick, and sometimes very offensive looking—in many cases like thin pus. The mother should take her child to a specialist who has the proper instruments to examine the nose and remove any foreign body that may be found there.

Another cause of chronic catarrh is little nasal polypi; however, these are not so very common in early childhood. Children who have frequent attacks of asthma have these little polypi in their noses in many instances. In damp weather these polypi swell a good deal and cause much suffering, causing the child to feel as if he were suffocating.

He is also often troubled with headache, and sometimes his sense of smell or taste and hearing are impaired. The discharge in these cases is not so profuse as in the other forms of catarrh, and does not look like pus. The only treatment for these growths is their complete removal by a physician.

In addition to the above causes and forms of catarrh there are some congenital defects in the nose which may be mentioned, but need not be discussed here, as it would be almost impossible for anyone but an experienced physician to detect the errors or remedy the defects.

In closing this most important subject of catarrh of the nose I cannot too strongly urge the mothers who have the good of their children at heart to have the proper treatment given them as soon as the first sign of trouble in this direction is noticed.

FOLLICULAR TONSILLITIS

Causes.—This is seldom seen in infancy, but is often met with later in childhood, especially among children who are rather delicate and who have enlarged tonsils. Rheumatic children are very apt to have it. If there is a predisposition to tonsillitis a chill or a slight cold will usually be enough to bring on an attack.

Symptoms.—An attack of tonsillitis usually begins suddenly. There may be a chill or simply a high fever; this often runs as high as 102° or 103° F. The bowels are apt to be constipated, and the child complains of general aching of all the bones, muscles, and head. The tongue is thickly coated and the breath very foul; the glands at

the side of the neck may be swollen. On looking into the throat one sees enlarged red tonsils with little yellowish dots all over them—as a rule both tonsils are affected. These little distinct dots may later run together and form a patch that an inexperienced person might confuse with diphtheria, but the diphtheritic patch is grayer and often more cloudlike. The fever in diphtheria is not apt to be so high. It is always wise, however, to have a culture taken if the patient is living in a city where this can be done. If there is any diphtheria present it will be found under the microscope.

The acute symptoms do not last long; the patches or spots disappear in a few days or a week at the longest, but the swelling and the redness may remain for a few days more.

Treatment.—The child must be kept in bed, and as quiet as possible. Calomel must be given at once; the proper dose for a child of two or over to take is one-quarter of a grain every hour for four or six doses. This should be followed by a glassful of citrate of magnesia the next morning. Alcohol sponge baths may be given for the fever and restlessness. In children too young to gargle, a throat spray may be used every two or three hours, which may consist of Dobell's solution or borolyptol and water—one part to three of water, or Manhattan gargle tablets in hot water. An older child may gargle his throat.

The food must be liquid while there is any fever—milk or broths; then a little later, vanilla ice cream, which will greatly soothe the throat, junket, Irish moss, blanc mange, and wine or orange jelly are all soothing and

easily swallowed by the little patient. After the throat has cleared and the child can get up, some form of iron tonic may be given.

DISEASES OF THE LARYNX

The larynx or windpipe, as it is commonly called, is one of the organs of respiration, which in children is often subject to disease. Two of the most frequent disorders to which it is subject are catarrhal spasm or catarrhal croup, and membranous croup. Let us first consider catarrhal or spasmodic croup.

CATARRHAL OR SPASMODIC CROUP

This is really a catarrhal inflammation of the mucous membrane of the larynx, accompanied by spasm. Before the child is six months old this trouble is not often met with, but from six months up to the third year its occurrence is very common.

Causes.—Sometimes a child will inherit a tendency to croup; in other cases, enlarged tonsils or adenoids may be the chief cause. Undue exposure to cold, indigestion, or constipation may be the immediate cause of an attack, and if a child has once had croup he is more liable to have another attack at some future time.

Symptoms.—While this form of croup usually comes on very suddenly in the middle of the night, there are sometimes signs before the onset which may serve as a warning, especially if the child has had an attack previously. There may be some hoarseness or discharge from the

nose, and as the afternoon and evening advance, a hollow, barking cough may be noticed. Later in the night the breathing will become difficult, the real spasm commence, inspiration being especially difficult. The child will waken from a sound sleep with all the signs of croup. A mother who has once watched one of these attacks is not likely to forget it, for the distress of the little patient is great: he generally sits up in his crib, struggling for breath. His breath comes slowly, the walls of his chest being drawn in; his voice is very hoarse and often accompanied by the characteristic metallic cough; his pulse is rapid, and he may have a slight amount of fever. In very severe cases the lips and tips of the fingers may become blue, and the child appear almost exhausted before the trouble gradually yields to treatment and the baby falls asleep. In some cases one would scarcely know the child had been ill the previous night, but most often there is some cough remaining and the patient will appear drowsy and tired from the loss of sleep. Frequently croup will be repeated two or three nights in succession, but after this it may not be seen for several weeks or even for the rest of the winter, but there are some children who have these attacks regularly every few weeks.

While croup is a most distressing thing to witness, this simple form of it rarely if ever proves fatal, and the mother should try to keep calm, otherwise the child will notice her alarm, and so become worse himself.

Treatment.—While a doctor should be summoned when a child has croup, the mother may do much to relieve the baby while she awaits his arrival. In nearly all cases it is advisable to make the child vomit, for in that way some

of the mucus can be gotten rid of, and the breathing made easier. About the best thing to use to produce vomiting is the syrup of ipecac: this may be given one-half or one-quarter teaspoonful at a time, every fifteen minutes or half hour until the child vomits. If for some reason it is impossible to obtain ipecac, the child should be made to take some tepid water with a pinch of salt or mustard in it.

Every effort should be exerted to relax the spasm of the larynx. This may be accomplished by wringing out flannels in very hot water and wrapping them around the child's throat, the temperature of them as hot as can be borne without burning his skin, then changing them for fresh ones as soon as they begin to grow cold. Inhaling steam is also a most valuable form of treatment, and a mother who has a child at all subject to croup will find a croup kettle a very precious possession. For method see pages 74-77. The steam should be continued until the breathing is easier, or the child may be kept in the tent made for this purpose by draping sheets over the crib twenty minutes at a time, then removed and put back again after a few minutes.

There are several drugs which a doctor may use in treating a case of croup, but the mother should not give them unless ordered by the physician in charge of the child. One safe thing which she may give is a dose of castor oil, and if the child's bowels have not recently moved, she may give an enema of soapsuds.

The diet should be restricted to only light food, which it has been previously found he can most readily digest. He should be kept in the house for several days after

an attack of croup, and not allowed to stand in draughts, nor at an open window with his head bare. I have often seen children stand at an open window with a door behind them wide open, so that there is a tremendous draught of air; and then their mothers wonder why it is that the child has so many attacks of croup, or such frequent colds!

Children subject to croup should wear flannels next the skin winter and summer, but, of course, of different weights. They should have their necks and throats sponged with cold water every morning, then briskly but gently rubbed, and if there is any trouble with the nose or throat, these should be treated by a specialist who understands his work well. The child should be kept out of doors as much as possible on pleasant days, but if very damp, or when there are sharp winds, it is better to keep him in the house.

MEMBRANOUS LARYNGITIS OR MEMBRANOUS CROUP

Causes.—Membranous laryngitis is almost always due to the Klebs-Loffler bacillus but it is just possible that another kind of infection may cause it.

Symptoms.—At the beginning this form of laryngitis is not distinguishable from the catarrhal form of croup; however, it is not quite so sudden in onset. There is hoarseness and cough gradually increasing and difficult breathing, which grows rapidly worse as the membrane spreads. The temperature usually ranges from 99° to 101° F. until late in the disease when it may rise to 105° or 106° F. The loud sawing breathing is the chief symptom,

the face being pale and drawn and the child in great distress. It is difficult to distinguish this from simple croup but if there is severe, constant, and increased difficulty in breathing with loss of voice, membranous croup may be thought of with some degree of certainty. Cultures from low down in the throat will decide the question.

Treatment.—The child should be isolated, and full doses of diphtheria antitoxin should be given without waiting for the culture to be examined. The bowels should be opened by calomel, and steam inhalations should be tried; if the child is strong enough ipecac may be given carefully, as for treatment of croup (p. 175). The diet should be a fluid one and great care should be taken to keep the child quietly in bed until cultures from the throat have been negative for some days, as the heart is apt to be very weak and may give out if much energy is exerted too soon.

When the breathing is very difficult it may be necessary for the doctor to insert a little gold tube into the larynx or windpipe.

ACUTE CATARRHAL LARYNGITIS

This disease is not so common among young children as is the spasmodic form or croup.

Causes.—“Taking cold” and exposure to dampness are the most frequent causes of this disease.

Symptoms.—In the mild form there is hoarseness or loss of voice and usually a hard dry cough, worse at night. The patient is not very ill and has little or no fever. In the severe form there is much more temperature

usually; it ranges from 100° to 105° F., the child being much more depressed. There is an almost constant hoarse, dry, barking cough, and some difficulty in breathing. The attack usually lasts from four to ten days.

Treatment.—In all cases the child should be put to bed at once, the temperature of the room being kept at 70° to 72° F. Calomel or a saline laxative should be given and the diet should consist of milk, broths, and thin gruels. At the beginning of the attack a hot mustard foot bath should be given.

Inhalations of steam are here the most important feature in the cure of the child. Simple steam without medication may be used, or sometimes compound tincture of benzoin, or creosote may be added to the boiling water. For full directions as to method of giving inhalations see pages 74-77. Usually the inhalations are used for fifteen minutes every two hours, but in very severe cases the steam may be continued the greater part of the time. Small doses of ipecac and squills may be needed, but if the child is sufficiently ill for these he is sufficiently ill to have a doctor prescribe them and also administer stimulants if the pulse requires them.

DISEASES OF THE BRONCHIAL TUBES AND LUNGS

ACUTE BRONCHITIS

This is an inflammation of the bronchial tubes and is very common in infancy and later childhood. It must be promptly treated from the start, for while not a very serious disease in itself, it may so easily lead to some

condition which is more so and the inflammation extend downward into the lungs. It is more common in cold weather than in warm.

Causes.—Bronchitis often is seen as a complication of one of the contagious diseases, especially measles and whooping-cough; in cases of adenoids and chronic catarrh an attack of bronchitis is liable to start up at almost any time. Rickets also predisposes the child to bronchitis. Generally a sudden chilling of the body in connection with some germ will start the attack. Children who have been kept in close, hot rooms and overloaded with clothing, have had hot baths, and little out-of-door air, are very frequent victims.

Symptoms.—The mild form of bronchitis met with in infants is observed when the inflammation is only in the large bronchial tubes. It generally begins as a common cold, followed by a cough, which may be either very severe, or may not be so very troublesome. The breathing is quicker than normal, and mucus is coughed up into the throat and again swallowed, because the baby cannot expectorate it. The temperature ranges from 100° to 102° F. but not often higher; there may be vomiting and some diarrhea, due to mucus swallowed; the child does not care for his bottle. A peculiar rattling, wheezing sound will be heard in the tubes as the child breathes; this may be felt very well when the baby rests against the mother. These mild cases last from two or three days to a week.

The severe cases occur when the inflammation extends into the smaller tubes. Here the baby appears very sick; his temperature is higher—sometimes 105° or over; his breathing is more rapid and very labored, and the cough

may be almost incessant, and quite "tight." Often the hands and feet as well as the face will appear blue, and very little food will be taken. If the baby is not to get well, he grows rapidly worse, the cough gradually stops, and he is in a sort of stupor, being very blue—he is really suffocated by his own secretions of mucus. In the average case, however, the baby gets well; the temperature gradually grows less, and the cough also, until at the end of a week or ten days the child is well or nearly so.

Older children have very much the same symptoms as infants, but they are not quite so severe, and the disease is not considered nearly as serious as in the younger cases.

Treatment.—As one attack of bronchitis makes the child more susceptible to another, great care should be taken to so build him up that he will not be liable to the attacks.

It is absolutely essential that the child shall have fresh air, and plenty of it, and all the sun he can get. His nursery must be well ventilated night and day, but it is equally important that he should not be allowed to get in draughts. He must have a screen around his crib, so that the window can be open a little way and still the cold air not blow directly on him. If old enough to run about or creep, he must not be allowed to sit on the floor in cool weather, but must either have an exercise pen built on legs, a box with sides to keep off the draught, or else sit in a little chair with his toys before him on a table when he is not actively running about. He must wear flannel next his skin winter and summer—the medium weight in winter, and the lightest possible in summer. If

he can live in a place where the air is dry and pure, so much the better; his feet must be kept warm at all times. The envelope nightdresses which have a long flap in the back, which turns up and buttons onto the front of the bottom of the nightdress, are the best for young babies in winter, and for older children flannel nightdresses with feet should be worn. The air in the nursery should never be allowed to become overheated— 68° F. is the correct temperature for the daytime, and 55° F. at night. Hot baths must not be given, but tepid baths, and these should be followed by a dash of cold water down the spine and a rapid sponge with cold water over chest and neck, and later by a brisk rub.

Older children may stand in a tub of warm water and be quickly sponged with cold, and then rubbed briskly, so that a healthy reaction is started up. Wet shoes and stockings should be at once changed—rubbers worn if the pavements are at all damp. Low socks should never be used, nor should the child be allowed to go barefoot or wear sandals. Easily digested, nourishing food should be given.

For the actual attack of bronchitis the child must be put in bed and kept there while there is the least fever. If this were more often done the attacks would be easily broken up and not be so apt to extend into the smaller tubes. At the beginning of the attack either castor oil or calomel should be given—from one teaspoonful to one tablespoonful of the oil, according to the age of the child; or one grain to one and one-half of calomel is divided into doses of one-tenth grain every hour for babies, or one-fourth grain for older children.

The next thing to be done is to apply a mustard paste to the entire chest, back, and front. One tablespoonful of mustard and five of flour should be mixed well together with a little cold water, like a cake batter, and spread on old, thin linen or cheesecloth; then another layer put over it, and the ends neatly folded so as to prevent leaking. This may be warmed a little by holding it near the fire, and then wrapped about the child's chest. Care should be taken to pull it up back and front, so that it will reach up to the neck. A clean towel may be folded over it so it will not soil the nightdress or blanket which covers the child. The paste must be left on long enough to well redden the skin—from five to ten minutes usually accomplishes this end, but children differ much in this respect and the skin must be looked at from time to time. At the end of this time the paste must be removed and the chest quickly rubbed with warm olive oil, then the nightdress put on. The paste must be thrown away and a fresh one made every time; one paste has been known to break up an attack if it was put on early enough; however, it may be necessary to repeat these pastes every three or four hours, according to the child's condition.

Inhalations of steam may also be used in treating bronchitis in early childhood. It should be given as already described on pages 74-77. Simple water vapor is at first best, but after the first two or three days pine-needle oil, compound tincture of benzoin, or creosote may be used; a few drops of any one on the sponge of the inhaler or in the water of the kettle, may be of benefit. It should be given for fifteen minutes every three or four hours, in a tent, or, for mild cases, may simply be kept burning in

the room the greater part of the time. This will relieve the irritating cough better than any other remedy.

If the child becomes very much choked up and cannot get rid of the excess of mucus, ipecac may be given, as for croup, until he vomits, but this should only be done when very necessary. Little tablets of antimony and ipecac—one one-hundredth of a grain each—given every two or three hours, will help to loosen the tight cough. As soon as it becomes looser, then Brown Mixture—ten drops for a young infant, or one-half teaspoonful for a child of one year or over—may be given every three hours; or else one teaspoonful of Hive Syrup, one of sweet spirits of nitre and one of paregoric, with enough water to make three ounces, may be given every three hours—one teaspoonful to older children, and a half teaspoonful to babies under one year of age. If the child is taking little food and seems weak, liquid peptonoids, given in one-half to one teaspoonful doses in a little water, may be helpful; and in extreme cases, a few drops of whiskey or brandy, as stimulants, may be needed at especially bad times. The high fever must be controlled by alcohol sponge baths or an icecap, and not by drugs, unless especially needed for an individual case and prescribed by a doctor. The cough may hang on for some time after the child is well; in other respects, and in such cases, liquid peptonoids with creosote is very helpful, but it must not be given near mealtime, as it may upset the child's stomach.

Drugs should be used as little as possible; external applications and pure food and air should be relied upon to build up the child and also in treating the attack.

The food must be diluted about one-half at first, for a

bottle-fed baby, and gradually strengthened, and a breast-fed baby may be given an ounce of water or barley water before each meal, then kept at the breasts a little shorter time than usual, until he is better. An older child should have only a fluid diet when there is any fever.

BRONCHIAL ASTHMA

This disease is distressing at all times, but especially so in children. It is a disease of the nerves and often is seen in the children whose parents or grandparents have been very neurotic, or those who have had gout.

Hay-fever and rose cold are forms of asthma. Children with adenoids, enlarged tonsils, or any irritation of the nose and throat are frequent victims of asthma.

Causes.—Anything which irritates the mucous membranes of the respiratory tract may be a local cause.

Being out on a damp day, a sudden change of weather, driving in the wind, or certain odors are likely to bring on another attack at almost any time. In summer the attacks are less severe and less frequent. In hay-fever and rose cold forms, the chief symptoms are the great catarrhal secretions from the nose and “stopped up” feeling in nose and head. If the cases can be taken to a suitable climate, they many times completely recover, but if they must remain in a damp, changeable place, the attacks are likely to continue until perhaps a child outgrows them, or they may last throughout life.

Symptoms.—An attack of asthma in a child closely resembles that in an adult. There is great difficulty in breathing; the chest is seen to heave, and the child may

become blue from his efforts to breathe. Wheezing and rattling sounds may be heard in the chest, and the distress of the child is pitiful to see; there is more or less cough, but it is not usually severe. The attack may last a few hours or several weeks, the symptoms not being equally severe at all times, and gradually wearing off.

Treatment.—Every child who has any form of asthma should be taken to a nose and throat specialist, and have a careful examination of these organs made. If anything abnormal is found it must be righted before anything can be hoped for in other ways. For the attack itself the bowels should at once be opened by castor oil or calomel. Inhalations of steam as for bronchitis, and the application of the mustard paste that covers the entire chest, will often help to shorten an attack. Fumes from burning nitrate of potash will also help some cases. For medicine internally it may be necessary to give a little ipecac, as for croup, because after vomiting the patient is often relieved. Bromid of soda, antipyrin, and several other drugs are at times beneficial, but they must be given by a doctor who can watch their effects upon the child in each individual case.

The reduction of sugar in the food and the addition of bicarbonate of soda to the milk, may be safely given by the mother. Babies who are being fed from the bottle must have the sugar reduced one-half, or entirely omitted. Saccharin may be used instead; one grain for the day's food supply. Older children should be taught to do without sugar on their cereals, and have no candy or other sweets. One grain of bicarbonate of soda for each ounce of milk the child takes may be given. Little meat, espe-

cially *red meat*, and plenty of fresh, green vegetables, are desirable in feeding older children, especially if of rheumatic families. The bowels must be kept open.

BRONCHOPNEUMONIA

Causes.—Bronchopneumonia is the variety of pneumonia most often seen in babies under two years of age and in children who have recently had an infectious disease. It is always a grave disease, but when properly handled much may be done to save the little patient. It is much more prevalent during the cold weather than during warm, but may occur at any time. Children who have measles, whooping-cough, or influenza are very apt to develop bronchopneumonia. Exposure to cold and the extension of the inflammatory processes of catarrh and bronchitis are many times responsible for cases of bronchopneumonia. Children kept in close, badly ventilated rooms are also frequent victims of pneumonia.

Symptoms.—Cases which accompany or follow other diseases begin with the symptoms of these diseases, but in cases which occur by themselves the symptoms are often very sudden, the fever, cough, and difficult breathing being the first symptoms noticed by the mother, who will not be able to distinguish it from bronchitis at first. Sometimes an attack of vomiting will usher in the disease, and more rarely a convulsion. At first the bowels may be constipated, but later there is usually diarrhea and mucus passes with the movements.

The general symptoms in all varieties of the disease are at first a hot, flushed face which may later become pale

and often rather blue, especially about the mouth and finger tips. The skin will be hot and dry, the child restless and irritable, often refusing food rather than take the trouble to nurse either by breast or bottle, as he needs every moment to breathe. There is often quite a profuse nasal discharge of mucus; at times also the eyes may become reddened and contain some pus.

Here the cough is much more noticeable than in the other forms of pneumonia—it is a dry, hacking, and distressing cough that worries the child, and sometimes makes sleep almost impossible. Young children cannot, of course, expectorate, but they bring up the mucus only to swallow it again, or many times vomit it with or without their food; a severe cough will often make the child vomit. The difficult breathing may be a very distressing symptom, the child being quite blue from its struggles to breathe, and there may be a little grunt at almost every breath. The nostrils work noticeably and the pulse is rapid at times. The temperature varies much—is as a rule much higher in the evening than in the morning, but it is not quite as high as in the other form of pneumonia. It runs from 98° in the morning to 103° or 104° in the evening. It is very irregular as a rule, and one never knows when to expect a rise or fall; generally the temperature drops gradually as the child becomes better.

Days or weeks may be the course—there is no set limit for a case of bronchopneumonia. A highly strung or spoilt child will exhibit at times some nervous symptoms, but these are not apt to be seen as much as in the other kind of pneumonia. The diarrhea may be quite a grave symptom, and need treatment as in other cases of the

same trouble. By making a daily examination of the baby's chest the doctor will be able to tell how the disease is progressing.

Complications.—Earache, with sometimes a resulting abscess in the ear, is a very frequent complication of bronchopneumonia, and when the baby evidences great pain or the temperature suddenly becomes much higher, this should be thought of and the ear examined.

It should be treated as in any other case of earache, or if the drum is very red and bulging the doctor will make a little cut in the membrane, and the pain will cease. Empyema, or abscess in the pleural cavity, may occur, but it is not so frequently seen as in the other form of pneumonia.

To distinguish bronchopneumonia from bronchitis must be the work of a skilled physician. In cases of pneumonia the child usually appears sicker and the fever lasts longer than in bronchitis. The chest signs that the doctor hears will usually distinguish it from lobar pneumonia—the other kind seen in childhood. Also the irregular fever, being sometimes high, again low, is quite different from the other form in which the fever is usually high and remains high, until the crisis, rarely if ever getting below 100° F.

Treatment.—Castor oil or calomel must be given at the start, as in most cases where there is fever. Mustard paste and inhalations of steam must be given as in cases of bronchitis (page 182). The fever must be reduced by alcohol sponge baths if the child is restless, but if quiet and asleep it is best not to disturb him except when really necessary. It is a good plan to take the temperature, give

the sponge bath, apply the mustard paste, and give the inhalation of steam near a mealtime, then after the child is fed he will be able to have a long, uninterrupted sleep without being constantly disturbed. The general care, ventilation, etc., of the sickroom should be the same as that described in the treatment of bronchitis. If the abdomen becomes distended a rubber catheter must be inserted into the rectum, or the bowels irrigated to get rid of the gas, as the intestines when full of gas press upon the heart and lungs and make it more difficult for the baby to breathe. If there is very labored breathing or blueness, oxygen may be needed. The child's position must be often changed from side to side, and in many cases if the baby is wrapped up it will be a great help to hold him over one's shoulder for a few minutes at a time every day.

His food must be easily digested, and diluted if a bottle-fed or breast-fed baby; it is usually well to peptonize the milk for a while at least in the case of a bottle-fed baby. Older children must have milk and broths as their diet. Liquid peptonoids are here also advisable, and if the pulse is weak the doctor will advise stimulants as he judges they are indicated. The child's stomach should be saved as much as possible, and he should not be given drugs when it can be avoided. When the baby is convalescent a tonic of iron, or liquid peptonoids and creosote or cod-liver oil in cold weather, may help him to grow strong quickly.

If he can be taken to a dry, moderately warm climate for a short time, his return to health will be much quicker. After the lungs have cleared up and the fever

drops, if this cannot be done, he should be aired in the sun, indoors at first; then later go out every day.

LOBAR PNEUMONIA

This form of pneumonia is sometimes called *croupous pneumonia*, or *pneumonic fever*. It is really an infectious disease caused by a germ, and runs a regular course. It is the kind of pneumonia we most often see in adults, but it may occur at any age; in children it is perhaps the most frequent from the second to the sixth year. Many cases occur in winter, but in the spring the disease is more prevalent than at any other season.

Causes.—Children who are robust are as likely to have this variety of pneumonia as those who are delicate; they must in some way become infected with the pneumonia germ, and then perhaps a cold or sudden chilling of the body may help to bring on the attack. The melting snow and high winds of March are responsible for many cases, as the germs found in street filth are readily carried about by the wind. Either one or both lungs may be affected, but it is a little more common in the right lung than in the left.

Symptoms.—The onset of this kind of pneumonia is sudden; many times it begins with an attack of vomiting, and sometimes it may be ushered in by a convulsion. If the child is old enough to talk he may complain of a headache or pain in his side, or refer to the pain in his abdomen. I once knew a prominent physician who thought a child might be going to have appendicitis because he referred the pain to the region of his appendix, but after

a few hours the regular signs of pneumonia were found. Rapid breathing is noticed very early, and the nostrils may soon become active, while the characteristic little grunt is heard. Here the cough is not at all a marked symptom, and may be even absent or so slight as not to be noticed. When it does occur it is apt to be dry and hacking and may cause pain. Later in the disease it is more apt to be present than in the early stage. There is practically no expectoration in children. The bowels are many times constipated; in the case of young babies there may be diarrhea, but this is not as often looked for as in bronchopneumonia. The skin is dry and hot, the cheeks flushed, the tongue much furred, and there may be feversores on the lips. The urine is usually scanty and high colored; the pulse is rapid and full at first, but later it may become weaker.

The temperature is one of the most characteristic symptoms; it goes up with a jump and is very high almost from the first. It generally reaches 104° F. or 105° F. on the first day, and stays nearly as high as this, or even higher, until the crisis of the disease, when it takes a sudden drop to nearly normal or may even go below normal. Many times after the first drop the temperature will stay below normal for a day or two and then rise to the normal point. There is a distinct crisis in about one-half of all the cases occurring in childhood; this most often occurs from the fifth to the eighth day, but may be sooner or later—we generally look for it on the seventh or eighth day. The temperature which has been steadily high for a week or so then suddenly drops, and when this occurs the child is much more comfortable; he breathes easier, but

may be exceedingly weak. There is often delirium in cases of lobar pneumonia, especially when the temperature is very high at the height of the disease, and there may be twitching and other nervous symptoms; there may also be convulsions here as well as at the onset of the disease.

Complications.—Abscess of the ear is one of the most frequent complications. It may occur at any time of the disease, but if the temperature does not drop as it is expected to, or if it has gone down and suddenly runs up again, this is one of the first causes of the disturbance to be thought of. Pleurisy, either dry or with fluid, sometimes complicates pneumonia.

Sometimes the temperature will be kept up by an extension of the pneumonia either to another part of the same lung, or to the other lung; under these conditions the disease is prolonged indefinitely and the case is much more serious.

Treatment.—In an uncomplicated case of lobar pneumonia we naturally expect the patient to recover, especially if he is a child over two years of age. It is nevertheless a serious disease and one that needs careful nursing and doctoring with good judgment on the part of the mother or nurse.

We must take into consideration that this sort of pneumonia is a self-limited disease and will very likely run its own course no matter what we do; therefore, it is a great mistake to give numerous drugs in the hope of breaking it up. The child must be carefully watched and the treatment given him that will make him most comfortable. The open-air treatment has many advocates: the child is well wrapped and has hood and mittens on; hot water

bags are placed in his crib at his feet, and light but warm coverings are put on him; then he is taken to a roof or a porch where he remains most of the time. Many successful cases have been carried through by this method. Others advocate fresh air in a large, well-ventilated room. This plan is more apt to meet with the ideas of the mother and accord with conditions in more households. Even in the middle of winter the windows may be lowered, a screen protecting the child from direct draughts. With his high fever he will be much more comfortable in a room full of fresh air, and where he can breathe easier and will not take cold. His hands and feet must be kept warm by means of mittens, woolen stockings, and hot water bags. Care must be taken to keep the child's mouth clean. It should be washed several times daily with borolyptol and water, or boric acid solution.

His diet from the start must be liquid, milk or broths, given every three hours, and in the interval plenty of cool water should be given him to drink. If a young baby, the food must be diluted about one-half its usual strength, and peptonized if the least signs of indigestion are seen.

The bowels must be kept open daily. At first it will be well to give calomel—about one grain—in divided doses, as for bronchopneumonia; if a later laxative is needed, the milk or the citrate of magnesia may be used. For any distension of the abdomen from gas in the bowels the catheter must be inserted; often injections of salt solution are used, or an enema given.

At least twice a day the entire body should be sponged with lukewarm water and alcohol, but this should be care-

fully done, the child being disturbed as little as possible. For a fever over 103° F. extra sponge baths may be given, and an icecap kept on the head for an hour or so at a time; when the temperature is 105° or over, an ice pack is helpful, especially if the child is restless. Dr. Holt once remarked, "The child, and not the thermometer, must be treated." It is foolish to awaken a child from a calm and comfortable sleep to give a pack, just because the thermometer registers 104° or 105° F., but if that child is uncomfortable from his high fever, something should be done to reduce it.

The best way to give a child an ice pack is to place a rubber sheet on the bed, then a pad on that; a very large towel or a crib sheet should next be placed in lukewarm water wrung out and wrapped about the naked child, folding a part of it around each arm and leg; a piece of ice about as large as one's fist should then be gently ironed over the entire body, covering the places under the arms, and in the groins especially. An icecap should be at the head while this is being done, and if the feet are at all cold, a hot water bag should be placed there. This may be kept up for ten or fifteen minutes if the child does not become blue; if he does, he should at once be removed from the pack, and heat applied while he is rubbed with a warm hand, and a little stimulant given. This blue appearance rarely takes place, however. After the ice rubbing the child may be left in the wet sheet for an hour or so, then the temperature taken, and if it has dropped a little, or if the child seems more comfortable, the wet sheet may be removed and the nightdress slipped on with a light covering over it. The icecap may remain in place.

If the child is still restless and has a high fever, the ironing with ice may be repeated. Other physicians like to keep cool compresses on the child's chest the greater part of the time, but I have not found this to be very well borne by the average child. Alcohol sponging, and a pack, when necessary, I have found more effectual, and better borne by the little patient.

All these methods of reducing the fever and making the child comfortable are much better than giving drugs. If the cough is troublesome, inhalations of steam, as already described, may be tried, and if there is much pleurisy or the child complains of pain, the mustard paste may be used. When the child is taking little food and a mild stimulant is advisable, liquid peptonoids may be given. If the pulse is weak, especially during the small hours of the morning, whiskey diluted six or eight times with water may be needed. Diluted in this way, one-half or one ounce in twenty-four hours may be given according to the judgment of the doctor in charge. It is much better to hold off the stimulants until just before or about the time the crisis is expected; they may then be given for a few days to help the tired heart and lungs back to health. For a blue color nitroglycerin is a medicine much used. Strychnin is also given when the whiskey alone does not prove enough, but these drugs must be ordered by the doctor in charge for each individual case. After the temperature has dropped and has remained down for a day, an eggnog, wine jelly, milk toast, blanc mange, etc., may be gradually given to children of more advanced age. Orange juice may be taken throughout the disease and may help to keep the bowels open and relieve

the thirst. An iron tonic or cod-liver oil may be given for a while to help build up the child after the disease. Oxygen may be needed if the child breathes with great difficulty or his color becomes bad.

CHAPTER VIII

DISEASES OF THE NERVOUS SYSTEM

THE nervous system of infants and children is such an exceedingly delicate one that very little is needed to upset it. Babies and children are very sensitive to nervousness in any grown person about them: a nervous mother or nurse who is taking care of a baby may nearly always expect to see some nervous manifestation in her charge. Especially is this true of nursing infants. The child feels the high, nervous tension which surrounds it much more quickly than an adult would, and suffers in proportion. Nervous disorders in childhood are often very obscure and extremely difficult to diagnose and treat; hence it will be possible to describe only the most common diseases of the nervous system here.

CONVULSIONS

Owing to the extremely delicate nervous organization of infancy and early childhood, convulsions are much more liable to take place than in later life.

Causes.—The inheritance of a nervous temperament makes a child much more subject to convulsions than he otherwise would be. Many of the infectious diseases are ushered in with a convulsion. The most frequent cause

of all, however, is some irritation from the stomach or bowels, so that when a child is seized with a convulsion, and until some other definite cause is discovered, it is best to consider this as the cause. Intestinal parasites, phimosis (or tight foreskin) with collection of smegma under the foreskin, adenoids, and any disease in which there is a high temperature, may also cause a convulsion. Besides the above there is a large class of convulsions caused by direct irritation of the brain or some of its membranes. A clot of blood or hemorrhage, which often takes place at birth, meningitis, tumors of the brain, or abscesses, extension of infective matter from the ear into the brain, blows or injuries of the head, and epilepsy, are all well-known causes of convulsions.

Symptoms.—As a rule convulsions come on very suddenly, but there is sometimes a slight warning, such as restlessness, twitchings of the extremities, or eyelids. The face becomes pale, or, later, blue, the eyes fixed, or rolled upward, and general twitchings occur, or else only a part of the body may be affected. Contortions of the face are usually marked, and the other convulsive movements may be violent or only slight. Again they may last only a second, or for some minutes. There is often frothing at the mouth, irregular, shallow breathing, irregular pulse and loss of consciousness. There is generally considerable weakness after the active convolution is over, and the child may fall into a heavy sleep. There may be but one attack of convulsions, or there may be several; this depends to a great extent upon the cause. There may be paralysis of one or more of the extremities, loss of speech, or a distorted face. Children who have convulsions many times

recover with apparently no bad effects; here again it all depends upon the underlying cause. Convulsions due to indigestion, worms, phimosis, rickets, dentition, or some reflex condition, terminate much less frequently in death; but those due to direct irritation of the brain are more apt to be fatal or leave some lasting paralysis. One attack of convulsions always makes a child more susceptible to others or indicates an unstable nervous system.

Treatment.—It usually takes a skilled physician to discover the cause of a convulsion and then prescribe the treatment that will prevent further attacks. For the convulsive attack itself the child should be quickly undressed and placed in bed in a quiet room. Cloths wrung out of ice-water should be placed at his head, and his feet and legs put in mustard water—one tablespoonful of mustard to a gallon of water—temperature 105° F. being used, in a deep vessel of some kind. The body and arms should be wrapped in a large towel or small sheet, wrung out of the mustard water, and this should be left on the child until his body is quite red. If one can quickly procure an icebag, it should be left on the head for at least an hour after the convulsion is over; if not, the ice cloths may be frequently changed to keep them very cold. In place of this mustard pack some prefer a hot mustard bath, but I have found that the pack disturbs the child less and is quite as effectual.

A high enema of warm water and soapsuds should be given as soon as possible—from one-half to one pint is usually enough to give. Many times, as soon as the bowels are cleared, the convulsions will at once cease. As soon as the child can swallow he should be given a dose of castor

oil—one teaspoonful to one tablespoonful, according to the age of the child; or

SCHEDULE FOR DOSE OF CALOMEL

Age	Amount	Time
Under 1 year.....	$\frac{1}{10}$ grain.....	every hour, for 10 doses
Over 1 year.....	$\frac{1}{5}$ grain.....	every hour, for 8 doses

In convulsions that are very severe, and often repeated, inhalations of chloroform are sometimes the only means of quieting a child, but a doctor or nurse must administer this—*never* a mother. Bromid and chloral, one or both, are sometimes needed in convulsions often repeated or of long duration; here again the doctor must prescribe for each individual case, as these drugs are very dangerous and must be used by a skillful person only.

Convulsions that depend upon a local cause, like tight foreskin or adenoids, can be prevented by removing the cause. Circumcision should be performed, or else the adenoids taken out, as the case may be.

A child who has had a convulsion should be kept on broths or gruels for at least twenty-four hours, then given diluted milk or whey, and very gradually return to solid food of an easily digestible nature. He must lead a quiet, open-air life, free from all excitement, and have plenty of sleep.

CHOREA

(*St. Vitus's Dance*)

This is a functional nervous disease in which there are spasmodic movements of one or more groups of muscles. There is also generally a mental irritability.

Between the ages of seven and fourteen years chorea is most common, although younger children may have it; females are more apt to have it than are males, and it is more frequently seen in the spring months than at other times.

Causes.—The relation of chorea and rheumatism is very marked in many cases. Rheumatism may occur before chorea, with it, or after it in a large percentage of the cases. Chorea may be caused by overwork at school, adenoids, enlarged tonsils, adherent foreskin, or it may occur as a sequel to the infectious diseases.

Symptoms.—In chorea the onset is usually gradual, the child growing more and more nervous and irritable until the regular spasmoid movements set in. A child at school will have difficulty in writing, and will be clumsy and is apt to drop things all the time. In some cases the trouble starts in the muscles of the face; in others in the legs, as the child will be noticed to stumble as he goes up stairs. The peculiar, jerky movements of chorea can seldom be mistaken for anything else, even by a casual observer.

Treatment.—It is generally best to take the child out of school. He must never be allowed to get tired and must be made to lie down at least two hours in the middle of the day. If he is a city child a visit to the country will often help very much; and if his mother is excessively nervous he should be placed in the charge of other persons for a time at least. A mother should not attempt to use the drugs employed for chorea. Each individual case should be studied by the doctor, and the medicine should be prescribed by him. Salicylate of soda, arsenic—Fowler's

solution—and iron are the drugs most frequently given in the treatment of this disease. It is best to have the eyes examined when a child has chorea, for defects there often aggravate or even cause the disease.

It must be borne in mind that chorea has a tendency to return, and a child who has once had it must be carefully watched and never overtaxed in his studies.

HABIT SPASMS

Sometimes without warning a child will suddenly develop peculiar spasmoid movements of the face or other parts, but it will be limited to one group of muscles. Blinking the eyes quickly, making peculiar grimaces, jerking of the hands or legs, are among the many frequent varieties seen. Every effort should be made to discourage these habits as soon as formed. If the child is at all run down, iron or cod-liver oil may be tried at home, or the doctor should be asked to prescribe a regular nerve tonic, such as strychnin.

HICCOUGH

This may be regarded as a spasm of the diaphragm and is often seen in infants and young children.

Causes.—Overeating, taking the food too rapidly, gas on the stomach, sudden chilling of the body, are all frequent causes.

Treatment.—The following are all useful measures in stopping the hiccough: giving hot water, either plain or with a soda mint tablet dissolved in it; putting a very little sugar on the tongue; holding the child over the shoulder and gently patting his back.

NERVOUS HEADACHE

Causes.—Children often complain of headache simply because they have heard an older member of the family do so; but the complaint should not be dismissed lightly without investigation of some kind. Many times it is due to eye strain and the child who frequently complains of this pain should be taken to an oculist to have his eyes tested. Children who are constipated or have some form of intestinal or gastric indigestion, often suffer from headache; this should be thought of, and the stools and urine watched. If a specimen of urine is tested it will often show evidences of intestinal indigestion, and the trouble can then be righted. Many of the infectious diseases begin with a headache: meningitis nearly always sets in with this symptom. Fatigue, overwork at school, malaria, and excitement in nervous children, many times cause headache.

Treatment.—The treatment depends upon the cause of the headache. It is a good plan to give a cathartic in nearly all cases and to keep the child as quiet as possible, making him lie down for a time and take a nap if possible. Icebags or ice cloths placed at the head often give considerable relief. Sweets should be forbidden, and a light, easily digested diet allowed. Headache cures should not be given to a child; fresh air and change of climate, if the attacks are frequent, will often break them up.

NERVOUS DISORDERS OF SPEECH

Stammering and stuttering are not infrequently met with among children.

Causes.—Many times the trouble is inherited; at others it takes place after a long illness or when the child is run down and anemic; again it may be the result of imitation.

Treatment.—Tonics should be tried and the child sent into the country if possible, or made to live out of doors as much as possible. He should be taught to take very deep breaths between his words, and receive instruction from a teacher in articulation and deep breathing, if one can be obtained. The child should be given the best hygienic attention possible, and if he can stand it, a rapid, cold sponge bath followed by a brisk rub should be given every day. The food must be regulated to exactly suit the child's digestion, and if the weather is cool enough and the stomach can bear it, cod-liver oil may be given.

SLEEPLESSNESS OR DISTURBED SLEEP

This is a very common disorder of early life, and is due to a great many causes.

Causes.—Improper feeding of some sort is the most usual cause in infancy; another very frequent cause is poor training of the child. He is allowed to turn night into day just because he happens to want to; he may take a fancy for being walked with or rocked at any time of the night, and as he finds he can have what he wants by crying for it, he will try it night after night. Pain from coming teeth, colic, or earache also cause restless sleep, but walking with or rocking the child does not quiet him when he is suffering from real pain. In older children intestinal indigestion, suppers that are too heavy, adenoids,

enlarged tonsils, asthma, violent play before bedtime, over-work at school, worry about examinations, fright instilled by foolish nurses, are the most frequent causes.

Treatment.—The cause must be hunted for and found before the treatment can be begun. Any indigestion must be treated by a change in food, as already described under indigestion (*see pp. 127-130*). Never, under any circumstances, should the child be given soothing syrups; it is criminal to do this. If the teeth are the cause of pain, the gums may be lanced or the tooth rubbed through, if possible. If there is an earache, dry heat should be tried and a doctor asked to examine the drum. A warm bath may be given at bedtime and all the clothing changed; the room should be well aired, and all lights should be turned out. A bottle or drink of water, either hot or cold, may be given, but no extra night feeding, as this only makes matters worse; this is especially true of breast-fed babies who have been allowed to nurse most of the night. A little discipline is many times the best sort of treatment.

NIGHT TERRORS OF CHILDHOOD

Children often have screaming attacks at night, waking from a sound sleep apparently much alarmed and frightened. When this occurs it can generally be traced to one of the following causes: adenoids or enlarged tonsils, the need of being circumcised, a heavy supper, excess of play or excitement near bedtime. The mother should take all these causes into consideration and if she cannot determine which is the cause of her child's trouble, she should have a complete examination made by her family physician.

BAD HABITS OF CHILDHOOD

THUMB-SUCKING HABIT

Thumb-sucking and sucking a pacifier, or sugar rag, is exceedingly common in babies and young children. It is one of the worst habits a baby can form. The constant suction wastes the saliva that is meant to digest the food and thus causes indigestion. Germs get on the thumb or pacifier and often cause sore mouth. This is especially true of the pacifier which is dropped on the floor or may be left lying about for flies to crawl over and then is placed in the baby's mouth, causing infection. The constant suction also causes enlarged tonsils and adenoid growths. It ruins the shape of the mouth and often makes the coming teeth protrude.

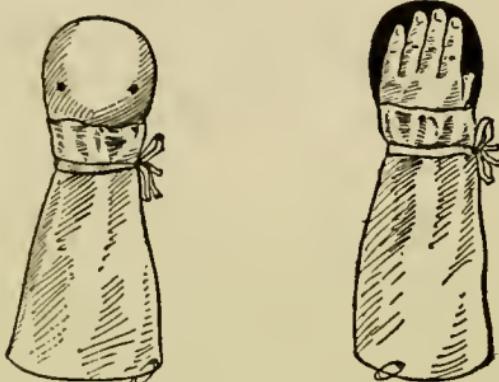


FIG. 18.—“HAND-I-HOLD” MITTS. (Courtesy of R. M. Clark & Co., Boston, Mass.)

Treatment.—The moment it is found that a baby has this bad sucking habit, means must at once be taken to stop it. Cotton bags or mittens on the hands should be

tried, or it is often a good plan to take a piece of stiff paper or cardboard and fold it around the arm outside of the shirt but inside of the dress so that the elbow cannot be bent to get the hand to the mouth, but which at the same time will allow the baby to handle toys. If this is done the paper or splint must be taken off twice daily and the arm bent and left free for a little while so it will not become stiff. Celluloid and aluminum mitts may also be had in some places to stop this thumb-sucking habit. A baby over one year of age may be broken sometimes by having bitter aloes or a solution of quinin put on the thumb. At any rate, the habit must be broken. If the pacifier is the article sucked, it should simply be burnt and never replaced.

NAIL-BITING HABIT

The same means may be taken to break up the nail-biting habit.

TONGUE-SUCKING HABIT

If the tongue is sucked, not very much can be done. A good plan is to put a little vinegar or lemon juice on the tongue every time it is sucked, or sometimes a drop of aloes or quinin will answer. Usually this habit is of short duration and the child will outgrow it of his own accord.

PERVERTED APPETITE OR DIRT-EATING HABIT

Symptoms.—This habit is shown by the child in a desire to eat dirt, sand, wall plaster, coal, etc.

Causes.—It is a sign of a nervous, highly strung temperament in many cases while in some cases the child is mentally defective.

Treatment.—The diet should be a most nourishing one and at the same time one that is easily digested. A tonic should be given if the child is anemic. Constant watching is needed. If the child is still very young he should be kept in his carriage or in a baby-yard whenever the mother cannot be with him.

MASTURBATION

Self-abuse

This is one of the most serious and annoying diseases of childhood. It is practiced even by infants of both sexes as young as eight months.

Causes.—Local causes should always be looked for. In boys the foreskin may be difficult to push back, adhesions being present. In girls the part called the clitoris may be the source of the difficulty—adhesions being found here. Urine that is too acid, pinworms, eczema, or any other skin irritation of the parts, may be the exciting cause. Again no special cause can be found. The child may be highly strung and inherit nervous tendencies which show themselves in this way. Older children often learn this bad habit from one another or from vicious nurses.

Symptoms.—The habit may be manifested in many different ways. The hands may be used to rub the parts; the thighs may be rubbed together while the legs are crossed; the child may rub himself on some object, as a

chair or the floor, or it may be shown in endless other ways which are not recognized at first.

The parts may look red and swollen, or, in some cases, there may not be anything to see. The child's face may flush or a perspiration may break out while masturbation is being practiced; great excitement followed by relaxation is usually seen. The habit may be indulged in at any time, but the favorite time is at bedtime or when awaking early in the morning, as the child is more apt to be alone at these times. As the habit grows the child will usually lose all sense of shame and will indulge in it at any time or place—all self-control is lost.

Treatment.—Treatment is very difficult and often has to be prolonged for months. In the first place a very careful local examination of all the parts should be made. If circumcision has not been done it is best to try this in the case of boys; in girls the adhesions around the clitoris should be broken up if any are found. The urine should be thoroughly examined and if there is too much acid found sweets should be cut down or eliminated from the food; if the child is taking beef juice or red meat this should be cut out of the diet for a time at least and the result should be watched carefully. More water should be given between meals to dilute the urine to a greater extent. If there are pinworms or eczema of the parts these should receive the proper treatment described for these diseases. All excitement should be taken from the child's life and as much air and sleep in the open as possible should be insisted upon with nonstimulating but nourishing food and a tonic if the child is anemic.

Constant watching is essential if the habit is to be

broken up. If the child uses his hands to practice self-abuse the wrists should be tied to the sides of the crib with broad tapes so the parts cannot be reached. If the habit is practiced by rubbing the thighs together with crossed legs then the legs may be tied or a special apparatus made to put around the legs and keep them apart. Sometimes it is necessary to blister the inside of the thighs or vulva in girls to make them so sore that the habit is very painful and cannot thus be indulged in, but this must be done by a doctor. The child may have to be kept entirely away from other children so as not to teach them the bad habit. If the habit is allowed to continue it may lead to forms of insanity, and the mother should spare no time, trouble, or expense in breaking it up if at all possible. The younger the child, the more hopeful the outlook for recovery.

CHAPTER IX

INFECTIOUS DISEASES OF CHILDHOOD

AN infectious disease is a disease which is caused by some special microorganism. We used to employ the term *contagious disease* when we meant a disease that was communicated only by direct personal contact of some sort, as through the touch or the breath or skin, but now *contagious* is no longer used in contra-distinction to *infectious*. Diseases transmitted directly from one person to another are best called *communicable diseases*.

The infectious diseases most common to children are: scarlet fever, measles, German measles, chickenpox, whooping-cough, mumps, diphtheria, and tuberculosis. Malaria, typhoid fever, epidemic cerebrospinal meningitis, influenza, smallpox, infantile paralysis, and congenital syphilis are also of this class, but not quite so common in early childhood. Then there is a set of infectious diseases that affect the intestines and stomach; of this class summer diarrhea of infancy is the most frequently met with.

In many of the infectious diseases the special germ that causes the disease has been identified without a doubt. In several of the other diseases there is still a doubt, but learned men and women all over the land are working in laboratories constantly, and every little while making wonderful discoveries, so that some day we hope

to have all the germs that cause disease definitely identified, and then we shall know exactly how to handle them, and be able to save many more lives among the little children. Many hundreds of cases of the dreaded disease, diphtheria, have been prevented and saved since the discovery of the diphtheria antitoxin, and if we could find such an antitoxin for the other infectious diseases there is no doubt but that many hundreds of other babies would be spared.

Most of these diseases have what is called "a period of incubation," in other words, the time which elapses between the exposure of the child to the disease and the time when the disease manifests itself. For a great many reasons it is very valuable for a mother to know when she may reasonably expect her child to "come down" with any of these diseases, if she happens to know that he has been exposed; she can tell then about how long he should be kept away from his brothers and sisters, or out of school, etc. Hence the following facts regarding the most common infectious diseases will be of service:

PERIOD OF INCUBATION

Scarlet Fever....	Average two to six days; Possible few hours to fifteen days.
Measles.....	Average eleven to fourteen days; Possible nine to twenty-one days.
German Measles..	About fourteen days. Average seven to fourteen days;
Whooping-cough..	Possible four to twenty-one days.
Diphtheria.....	Average five to seven days; Possible two to twelve days.
Mumps.....	Average seven to fourteen days.

Chickenpox.....	Average seven to fourteen days; Possible five to twenty-one days.
Smallpox.....	Average ten to twelve days; Possible seven to fourteen days.
Influenza.....	Average two to three days; Possible seven days.
Typhoid Fever...	Average seven to fourteen days.

The other infectious diseases have no positive periods of incubation, therefore after a child has been exposed to any one of them one cannot tell just when to expect the first symptoms.

MUMPS

General epidemics of mumps are not often seen, but it is decidedly an infectious disease. It is characterized by the swelling of the glands at the sides of the face and neck which are called the *parotid glands*. Sometimes other glands are also involved.

Causes.—The origin of mumps has been traced to a microörganism.

Although children of all ages may have mumps, it is chiefly seen in those of the school age—especially between the ages of four and fourteen. Children are not so susceptible to the poison of mumps as they are to many of the other infectious diseases; therefore even when they have been exposed to a case it is not at all certain that they will contract it. It is nearly always contracted by direct exposure, but it may possibly be carried by a third person, or by clothing.

From the very beginning mumps is contagious, and continues to be so for several days after the swelling has

disappeared. It is usually safe to keep a case isolated three weeks in all, or ten days at least after the swelling has disappeared. If a child has been exposed to a case of mumps and he is to contract it, he may do so at any time from three to twenty-five days; from one to two weeks is the usual time.

Symptoms.—In the majority of cases swelling is the first symptom. Loss of appetite, vomiting, pains in the back and legs, and considerable fever before the swelling is seen, may occur. These symptoms may last a day or two, and are followed by gradual swelling. In a mild attack the temperature is generally 100° to 101° F. at first, and in a severe case it may be 102° to 104° F.

Even before the swelling is very noticeable there is more or less pain on moving the jaws or on pressing over the parts. This is usually much increased by taking acids, such as vinegar or lemon, into the mouth. The lower back part of the jaw just below the ear is the point where the pain is the most severe. The disease may be limited to one side only; both sides may be involved at once, or one side may follow the other after several days or even longer. The gland will continue to increase in size for two or three days, then remain stationary for several more days and then gradually grow smaller. The swelling in a severe case may be very great. It extends upward behind the ear and forward onto the face in front of the ear, the center of the swelling often being the lobe of the ear. The position of the swelling should be remembered, for it often helps greatly in deciding the nature of the disease, and distinguishing it from other swellings in the neighboring regions. If one stands behind the patient the typical

swelling may be often well observed. The little glands under the jaw and under the tongue may also be swollen to some extent.

The secretion of saliva is much diminished during the disease, and the mouth is dry, causing the child to be very uncomfortable. The patient suffers extreme pain on trying to eat and sometimes even to swallow; the mouth can be opened only a little, and often solid food cannot be taken at all.

Treatment.—The treatment in mumps is simple. While there is any fever the patient must be kept in bed, and while any swelling lasts, confined to one room. The bowels must be kept open by magnesia or some other simple laxative. The diet must consist of milk, broths, and gruels while the fever lasts, and the swelling is very great; acid fruits and other sour things should not be given, as they usually cause great pain. If the temperature is high alcohol sponge baths may be given and an icecap kept at the child's head. For local treatment hot applications to the swollen glands will give more relief than any other remedy. A large compress or napkin wrung out of hot water 115° to 130° F., placed over the gland, then covered with oiled silk and held in place by two or three turns of a bandage, is often helpful in lessening the pain. If it is to be kept warm it will be necessary to change this dressing every twenty minutes or half hour. Warm oil on a piece of flannel may sometimes be used with benefit; an ointment of ichthyol—10 to 20 per cent.—is sometimes used. The mouth, nose, and throat must be kept clean with some mild antiseptic solution and frequent drinks of cool water given to relieve the dry mouth and throat.

Complications.—The complications of mumps are not many or frequent. Sometimes painful swellings of other glandular organs occur, and in older children, especially boys, this complication may be rather serious. If this occurs there is usually increased fever, and perhaps a chill; occasionally kidney disease may follow a case of mumps, but this is rare. Deafness has been observed to follow a number of cases of mumps, the nerve of hearing being involved, and hence deafness being permanent.

Meningitis, heart disease, and pneumonia have all been known to occur with mumps, but they are rare complications and need very seldom be dreaded.

Many mistakes are no doubt made in diagnosing a case of mumps. It is often confounded with either adenitis of the neck or simple swelling of the lymphatic glands. If one will remember the location of the swelling in mumps and the fact that it extends *onto the face in front* of the ear as well as behind it, mistakes would not so often occur. When the lymphatic glands are involved the swelling is entirely below the ear and behind the jaw, and does not extend onto the face. These swollen lymph nodes may become very large and hard, then gradually absorb, or they may soften, and pus may form in them which will have to be let out by a doctor.

It is always a mistake to open glands too early; if this is done they take much longer to heal and are often very painful during the process. One should not be in a hurry to operate if there is any reasonable doubt as to the presence of pus.

Disinfection.—It is not necessary to fumigate after a case of mumps.

CHICKENPOX

(Varicella)

Causes.—Chickenpox, or varicella, is an infectious disease very often seen among infants and children. It is exceedingly contagious and may possibly be carried by means of a third person, but it is generally contracted through direct exposure. The disease is characterized by an eruption of papules and vesicles, and it is in this eruption that the contagious poison of the disease is lodged. As a rule a child has but one attack of chickenpox in his life. After exposure generally seven to fourteen days elapse before the first symptoms are noticed, though they may be seen a few days earlier or later.

Symptoms.—Generally an attack of chickenpox comes on without any warning, but sometimes there will be slight fever or general feeling of illness the day before the rash is seen. The eruption usually appears first on the face, scalp or shoulders, and looks like small red spots rather widely scattered; it spreads rather slowly over the body and arms, legs, hands and feet, and may often be seen in the mouth. One quite constant feature of the eruption is that the spots seem to come in crops, new spots appearing for several days, so that by the time the last have appeared the first have begun to dry up and have assumed a very different appearance; *at the height of the disease all stages of the eruption may be seen on the same part of the body.*

The little red spots, which are at first very small, increase in size, becoming surrounded by a red area; some

of them remain in this stage, but others go further, and it is then that the little vesicle is seen. Some of these vesicles are large and others quite small. When the vesicles begin to dry up this process usually starts in the center, giving the spots a slightly depressed appearance here. Next, crusts form, and these fall off one by one at any time from five to twenty days. If the spots have been deep a white scar may remain, but this does not often happen.

The general symptoms are not severe. There is usually a little fever— 101° to 102° F.—which lasts one or two days while the rash is coming out rapidly. In very severe cases the temperature runs higher and lasts longer; there may be considerable itching, and I have known of a few cases which showed a slight diarrhea.

Treatment.—Little treatment is needed. It is best to isolate the case, especially if there are other young or delicate children in the family, and the child must be kept away from school until all the crusts have fallen off and the skin is perfectly clear and smooth again. While there is fever the child must be kept in bed on a fluid diet, with cool water to drink; a cathartic should be given so as to insure a free action of the bowels each day. Warm sponge baths may be given. Carbolized vaselin may be applied to the itching spots, and will somewhat allay the irritation. The child must not be allowed to scratch, as serious infection may result. To prevent scratching, splints on the arms, mittens on the hands or tying the hands in bags may be tried.

Disinfection.—It is best to very thoroughly clean the room at the close of the disease.

VACCINATION

(Vaccinia)

While vaccination cannot be spoken of as a contagious disease it is one that can be communicated by what is termed *inoculation*, and something about the process should be known to every mother. All leading physicians who treat children recommend vaccination. Mothers sometimes ask, "Why is vaccination necessary when we have so few cases of smallpox and the baby is not likely to be exposed?" Because it is only by the constant practice of vaccination that the dread disease is kept under control, and it is everyone's duty to assist in keeping it out of the country.

The best time to vaccinate the average healthy baby is during the third month; it is then well over before the teeth begin to be troublesome and can be better cared for than when the baby is older and more active. In young infants it is best to select the leg for the seat of vaccination; if the child is old enough to walk or creep the arm may be chosen. The outer fleshy part of either arm or leg, and not near a joint, but about midway between them and on the left side rather than on the right, is the best spot to choose. A physician who will take pains to procure fresh and pure vaccine virus must be asked to vaccinate the baby; the mother or nurse should not undertake it. The part selected must be carefully washed with soap and water, dried, and then washed with alcohol. A perfectly new, clean cambric needle should be used to make the scratches, which should be only about an eighth of an inch

long, and crossed by others the same length: three or four in each direction are enough. The vaccine virus should then be well rubbed into the spot as soon as a little blood is seen; then this must be allowed to dry before the part is covered. Either a clean bandage may be used to protect the sore from the shirt sleeve or stocking, or some soft linen may be basted inside the clothing. As it is best to keep the part perfectly dry a sponge bath is best while the part is sore.

The average vaccination begins to "take" on the fourth or fifth day; there is an area of redness which is followed by the forming of a vesicle. By the ninth or tenth day it is fully formed; the redness around it may be two or three inches wide, with some swelling. The vesicle then either ruptures and discharges or dries to a crust, and the redness begins to fade. The crust or scab remains on from about one to three weeks, then falls off, and leaves a scar. Often young infants feel no general symptoms, but others have some fever for a day or two, and perhaps loss of appetite.

When the vesicle breaks the part should be dusted with boric acid powder two or three times a day, or if there is a discharge of pus a two per cent. ointment of ichthyl may be applied on clean linen. Vaccination shields should not be used. The shield constricts the part, rubs into the wound and often causes much trouble and pain. If the part is kept clean and *dry* and the child not allowed to scratch, very little trouble need be anticipated. Vaccination should be repeated about once in seven years, or more frequently, if there is an epidemic of small-pox.

SCARLET FEVER

Scarlet fever is one of the most dangerous of the contagious diseases. The child must be put to bed and kept there from the time of the first symptom until he has finished desquamating—until the skin has all peeled off. This will often take from four to six weeks.

Causes.—The disease may be communicated by direct exposure, by a third person, or by food, clothing, toys and books. The germs live a long time—cases have been traced back a year or more; therefore the greatest care must be employed in disinfecting all articles used, or else the things must be burned.

Symptoms.—As a rule the first symptoms noticed are sore throat, vomiting, and high fever. Then within twenty-four or thirty-six hours the rash appears. This rash is seen first on the chest and abdomen; it is bright red in character and in very fine, red dots. So close are these dots that at a little distance it appears like a red blush. It is sometimes spoken of as a “boiled lobster” rash. It usually spreads so that the entire body and face are covered with it, but in a few cases it is limited to only a portion of the body. It generally lasts from five to six days, but may disappear in a few hours. As the rash fades the skin begins to peel (or desquamate), and this may continue for two or three weeks or even longer. The palms of the hands and soles of the feet, the fingers and toes are often the seats of extensive peeling; by means of this peeled-off skin the disease may be carried to another person.

The appearance of the tongue and throat in scarlet

fever is quite typical. The throat is of a deep red color and may be quite swollen, while the tongue has little raised dots of red on it, which give it the name of *strawberry tongue*—it looks so much like a strawberry. As a rule the fever is quite high during the time the rash lasts as well as just before it appears; in many cases it will reach 105° and remain between this and 102° F. for some days. In such cases there is often delirium and the child appears very ill. Other milder cases may have a fever of only 101° or 102° F. as the highest, and these are much less serious than where the fever is high.

Treatment.—When caring for a case of scarlet fever the mother or nurse must be isolated with the patient and wear a wash dress and cap. Other children must be kept from school or sent away before they have been exposed.

Until all fever has left, the patient must be kept on a milk diet; if the child is bottle-fed the usual formula must be diluted at least one-half. Older children may take kumyss or whey at times in place of the milk, for the sake of variety, and orange juice may be allowed twice a day. As the fever leaves, broths, cereals, junket, milk toast, coddled egg (if the urine is normal) and a little ice cream may be allowed, but nothing more substantial for three or four weeks. The bowels must be kept open daily by the use of an enema or the milk or citrate of magnesia. Other medicine is not, as a rule, needed. This must be left to the doctor in each case, however. To control the fever an icecap may be placed at the child's head, especially if he does not sleep well.

Sponge baths of tepid water with two tablespoonfuls of alcohol to the basin of water may also be given. That the

rash will "strike in" is a foolish belief without real foundation. After the daily sponge bath it is well to rub the child with melted cocoa butter or vaselin; this will allay the itching so often present and also keep the scales of skin from flying about. The urine must be carefully watched and frequently tested by the doctor; plenty of water must be given between the regular hours of milk meals; the nose should be sprayed with a mild antiseptic wash or oil; the throat may be sprayed or the child may gargle—if he is old enough to do so, a mild antiseptic gargle or wash should be used. If the child has teeth they must be brushed or wiped off two or three times a day with boric acid solution. The mouth and throat must never be neglected in these cases.

Complications.—The complication we most dread in scarlet fever is nephritis or disease of the kidneys; the milk diet and rest in bed will many times prevent this, however. Otitis or inflammation of the ear is another frequent complication. When the child complains of ear-ache hot flannels must be applied or a hot water bag, and if the pain still continues a doctor may have to make a little opening in the drum membrane. Adenitis may occur, especially in the neck; this is simply a swelling of the little glands situated there, and a small icebag may be tried. This should be kept constantly applied and will often reduce the swelling. Swelling of the joints sometimes occurs as a complication; if this takes place they should be wrapped in cotton batting and kept at rest as much as possible. Many times the doctor will order a soothing lotion to be applied to the joints before the cotton is wrapped around them.

Disinfection.—At the close of a case of scarlet fever the child must be put in a tub and thoroughly washed with warm water and soap. He must then be bathed with a solution of bichlorid of mercury (1-5,000), hair and all, carefully dried and wrapped in a fresh blanket, carried into another room and dressed in clean clothing. He should be given airings in the house for a few days before going out.

The room and all articles that have been used must be thoroughly cleaned and carefully fumigated at the end.

MEASLES

With the exception of smallpox, measles is the most contagious of the infectious diseases. Children of all ages may have it, but it is not so common in babies under one year of age as it is later in childhood.

Causes.—Measles is usually contracted by direct exposure to a person already having the disease, but it is just possible to carry it by means of clothing or other articles, or by a third person. The germs of measles do not live as long as do scarlet fever germs.

A child who has been exposed to a case of measles may be expected to show signs of it at any time from nine to twenty-one days after the exposure. It is contagious from the appearance of first catarrhal symptoms until the child is entirely well at the end of two or three weeks; in most cases twenty-one days are allowed as the contagious period of measles. If there are other children in the family they must be kept from school while measles is in the house, and the child having measles must be isolated as closely as possible with his mother or nurse.

Symptoms.—In the average case of measles the symptoms very much resemble those of a common cold: there is feverishness, running nose and eyes, a dry cough, and a general feeling of illness, the child being cross and out of sorts without knowing just why or just what he wants. Sometimes the temperature runs as high as 103° or 104° F. and there is a slight chill. On the second or third day the temperature will usually fall to normal and the child will feel better, though the appearance of a cold still persists. Then, as a rule, on the fourth day the rash will appear and the temperature become high again.

The rash is first seen on the face, and behind the ears; from here it extends over the rest of the body and extremities. It remains well out for about two days, then begins to fade in the order of its appearance. As the rash fades the skin begins to peel in very fine, branlike particles, quite different from the large pieces seen in scarlet fever. This takes ten days or less, but causes considerable itching of the skin. With the fading of the eruption the child will feel much better and the fever will gradually drop. There is often some diarrhea with measles, and sometimes a slight sore throat.

The character of the rash is quite distinctive; at first it appears as small, red spots, but soon enlarges into blotches, leaving distinct white areas of normal skin between the red blotches. It assumes a crescent shape later. Many of the blotches or spots run together, making larger patches. The face is often a good deal swollen while the rash is at its height, and the eyes are almost closed at times.

There is often a peculiar characteristic odor about a

patient who has measles; if the case is a severe one this is especially noticeable. The cough is usually quite troublesome; the tongue is thickly coated and the breath is foul; the urine is usually highly colored and may be scanty; the eyes are inflamed and watery, or they may even have a discharge of pus if they have not been properly shielded.

Little red spots with a bluish-white dot in the center may sometimes be seen in the mouth and even before the rash appears. These are called *Koplik's spots*, after the physician who discovered them.

Treatment.—A child with measles must be put to bed and kept there, away from all the other children. It is safer to keep in bed for fully two weeks, but in mild cases with no complications he may get up and sit in a chair after the tenth day. While the fever lasts the diet must consist of diluted milk and broths; then milk toast and cereals may be added, with a gradual return to the usual food.

The room should be slightly darkened as long as the child shows any weakness of the eyes, and he should be kept moderately warm but not overloaded with bed clothing. A dose of castor oil may be given if the movements are loose, or magnesia if they are constipated. If there is very high fever with restlessness or delirium, tepid sponge baths with alcohol in the water should be used, and an icecap kept on the child's head.

The mouth and teeth should be kept very clean with a mild antiseptic mouthwash. Inhalations of steam from a croup kettle often greatly relieve the troublesome cough, and are better than drugs. Plenty of cool water should be given. Boric acid should be used for an eye wash, some

of this being dropped into the eyes several times a day, and the lids kept very clean.

Great care must be taken to keep the child out of drafts, but the room must be well ventilated. When the child is allowed out of bed he must not sit on the drafty floor. A rubbing of the entire body with cocoa butter each day after a warm sponge bath relieves the itching of the skin.

Complications.—Bronchitis, bronchopneumonia, laryngitis, pharyngitis, earache or abscess in the ear, diarrhea, and severe inflammation of the eyes with a discharge of pus, are the most frequent complications. If the fever is very high there may be symptoms of brain trouble or even a convulsion.

Disinfection.—At the end of the disease the child should be bathed in a soap-and-water bath, then carefully bathed in a bichlorid of mercury solution (1-5,000), hair and all, wrapped in a clean blanket and dressed in fresh clothing. The room in which the child has been ill should be thoroughly fumigated by a competent person, and then cleaned.

WHOOPING-COUGH

Causes.—Whooping-cough is a very common and infectious disease. It is caused by a specific microorganism. Children of all ages may contract it, but young babies are especially liable to have it if exposed. From the very beginning of the first stage whooping-cough is contagious, and continues so while there is the least whoop. Generally it is best to keep a child with whooping-cough away from other children for two months. It is very rarely carried by a third person or by means of clothing. After

exposure one may expect a child to be affected with whooping-cough at any time from seven to sixteen days.

Symptoms.—There are two distinct stages of whooping-cough. The first is the catarrhal stage; this averages about ten days. For the first five or six days the symptoms are those of an ordinary cold and cannot be distinguished from this, but generally after this time the cough comes in paroxysms, although no whoop may yet appear. There may also be slight temperature. The second stage of the disease is known as the spasmodic stage; here the paroxysms of coughing are accompanied by the typical whoop, although in cases of young babies no whoop at all may be present—simply the severe paroxysm. Many times an older child can foretell when a paroxysm is about to take place and will run to his mother or take hold of a chair for support. He becomes red or purple in the face, his eyes protrude, a number of explosive coughs take place and then the typical whoop. This may be repeated several times in a single paroxysm, when a mass of thick mucus is brought up or the child may vomit; the latter is especially likely to happen if the child has been recently fed. In very severe cases there may be a nosebleed or even a convulsion. According to the severity of the case there may be many or few paroxysms in twenty-four hours; usually they are more frequent at night. This severe, spasmodic stage lasts generally for about one month, but may be much longer, especially during the winter months. Even after the disease is over, if the child takes cold or has an attack of bronchitis there may be a paroxysmal cough with it, or even a whoop. In the average case the paroxysms become less frequent, the whoop gradually

disappears, and the cough again resembles that of a cold or bronchitis until it stops.

Complications.—Hemorrhages, pneumonia, diarrhea and vomiting, and convulsions are the most frequent complications of whooping-cough.

Treatment.—No distinct cure for whooping-cough has been found. A vaccine is now being tried and is thought to help by numerous doctors. Drugs often do more harm by upsetting the stomach than they do good in relieving the cough. The chief thing to be considered is to keep the child as well nourished as possible and give him plenty of pure, fresh air. It is often well to take him away for a complete change of air; this will sometimes considerably lessen the duration of the disease. At any rate, the child should spend as much time as possible in the open air every day and sleep in a well-ventilated room at night.

The question of giving the child sufficient nourishment is often a serious one, because so much food will be vomited. It may be necessary to feed the child a little more frequently than when he is well. After a paroxysm of coughing, when the mucus and perhaps any food that has been in the stomach at that time has been expelled, a glass of milk or some broth with perhaps a little zwieback—if the child is old enough to take it—may be given and will many times remain down; another paroxysm is not likely to occur right away. Food which is easily digested and contains the most nourishment should be chosen. Infants should be given peptonized milk in place of the usual formula, as this will be digested more rapidly. If the child seems to be losing strength it may be necessary to give

some form of predigested beef besides the regular meals.

A croup kettle with a few drops of creosote on the sponge may be used for inhalation or be kept burning a part of the time in the room. The bowels must be kept well open; milk of magnesia is excellent for this purpose, and an occasional dose of castor oil should be tried. If there is difficult breathing or any tendency to bronchitis with the whooping-cough, a large mustard paste may be placed on the chest once or twice in twenty-four hours until the skin becomes slightly red. The child must be kept in the house for at least a day after one of these pastes is administered, however.

Patent medicines to be rubbed on the chest or taken internally should be avoided. If bronchitis is present a sponge bath will be best, otherwise the tub bath may be given as usual.

In some cases a belt that will support the abdomen has given relief. All of these measures should be tried before drugs are resorted to. If it is decided to try medicine internally a physician who understands the nature of the child should be asked to prescribe, and should carefully watch the patient.

It may be well to say a word here about the unwise way in which mothers willfully expose their children to diseases like whooping-cough and measles, just to "get them over with." This should never be done. Both these diseases are capable of causing death and should be avoided when possible.

Disinfection.—It is best to give the rooms in which the child spends most of his time an occasional fumigation, during the disease as well as at its close.

GERMAN MEASLES

(Rubella)

This is an infectious disease, generally very mild in character, and quite distinct from measles. Children of any age may have it, but infants under six months are not so liable to contract it as are older children.

Causes.—At any time during its course another child may take the disease if exposed to it, but it is especially contagious during its early stages. It is nearly always contracted by direct exposure to the person who has the disease, and not carried by a third person nor by articles like books, toys, etc.

If a child has been exposed to German measles one may expect him to show the first symptoms at any time from the eighth to the sixteenth day, although cases have been known to develop as early as the fifth day or as late as the twenty-first.

Symptoms.—Generally the first symptom noticed is the rash, but occasionally a slight fever, catarrhal symptoms, or a general feeling of illness precedes the rash. Even vomiting, headaches, or convulsions have been known to occur first, but these cases are not common.

The eruption generally appears first upon the face, then very rapidly spreads over the entire body, the legs being the last to be covered, so that by the end of one day, at the most, the rash is fully developed. In other cases, only a part of the body is covered by the rash, but nearly always the face is involved. The appearance of the rash is variable; sometimes it resembles that of real measles; and

again it looks more like scarlet fever. The majority of cases have a pale red rash with small, distinct spots which may run together, especially on the face, and form irregular blotches. When the scarlet fever type is seen there will be a fine rash, almost a red blush over the skin. Sometimes the rash is of a raised character so as to give the skin a shotlike feeling when the hand is passed over it. The rash lasts, as a rule, three days, but may fade sooner, disappearing quite rapidly and in the manner in which it first appeared. Often a brownish appearance is noticed on the skin after the rash fades, and many times the skin comes off in very fine dustlike particles: this cannot always be distinguished except by an expert observer. When it occurs it usually lasts from one to five days.

Other symptoms present are some fever, generally not above 102° F., and often not more than 100° F.; this may last for one or two days—rarely longer—and the patient may complain of a slight sore throat. The symptom that is the most characteristic about this disease is the swelling of the glands at the sides and back of the neck. These are called *postcervical glands*, and are the main feature which will enable one to distinguish this disease from measles or scarlet fever, when the rash resembles very much one or the other of these diseases. At the height of the disease this swelling is the most marked, then gradually subsides as the patient recovers.

Complications.—Very rarely are there any complications to this disease, the child usually making an uneventful recovery.

Treatment.—Compared to any of the other contagious diseases the treatment required is very little. The child

should be put to bed in a room by himself. It is so difficult to be sure that the patient really has German measles, and nothing more serious, that very strict isolation should be observed, at least for a few days, until all the symptoms develop and a more positive diagnosis can be made. Other children should be kept from school while there is the least doubt as to the nature of the disease, and not be allowed to enter the room.

The child should be given a dose of castor oil or a dose which is equally effective to move the bowels, and while there is any fever a milk diet is best maintained. As he improves, orange juice, broths, cereals, and toast may be added, with a little vanilla ice cream; then a poached or coddled egg may be given and the regular diet gradually resumed. A baby young enough to take a bottle should have the usual formula diluted a little, at least while the fever lasts. Breast-fed babies may be given an ounce of barley water or plain water just before each nursing, and kept at the breast ten or fifteen minutes instead of twenty.

As in all cases of infectious diseases the mouth, nose, and throat of the child must be carefully attended to. If secretions are allowed to harden and block the nose the child will be very uncomfortable; therefore at least twice daily a spray of an oily antiseptic substance must be used. The child should be trained to blow his nose thoroughly several times a day. The mouth and throat must be sprayed several times daily with boric acid or some other mild antiseptic solution; the teeth must be thoroughly brushed or wiped off with a soft cloth at least twice daily. The urine should be analyzed.

A warm sponge bath may be given and an inunction

with olive oil or cocoa butter if there is any itching of the skin. The swollen glands are best left alone. This is practically all the treatment needed in the majority of cases. If special symptoms develop the doctor must be asked to prescribe in each case.

At the end of ten days or two weeks the patient is usually well over the disease and may have a bath, be dressed in fresh clothing, and go about the house as usual; then outdoors on the first sunny day.

Disinfection.—It is not necessary to fumigate the room in which the sick child has been confined. It should be thoroughly cleaned and aired.

DIPHTHERIA

Causes.—Diphtheria is an infectious disease caused by a bacillus named after its discoverers, *Klebs-Loeffler*. The disease may be contracted by direct exposure, by a third person, or by articles of clothing, toys, wall-paper, milk, etc., and the bacillus is capable of living a long time.

Symptoms.—It is characterized by the formation of a membrane whose usual site is on the tonsils or some part of the throat, but it may be present in the nose, the larynx, or, in fact, any mucous membrane.

After being exposed to diphtheria a child may be expected to show symptoms of it in from two to five days; generally within a week after the exposure the disease will be well developed. One attack from diphtheria does not prevent a child from having another—it rather renders him more susceptible.

Unless the mother has formed the habit of regularly

examining her child's throat several times a week the disease may be well advanced before it is suspected. Especially is this true in the case of very young children who cannot tell where the trouble lies. Often a discharge from the nose of mucus mixed with blood will indicate an attack of diphtheria; the little glands at the side of the neck may be swollen, and there may be some fever, but this varies greatly, and in a straight case of diphtheria is not likely to be high except in very young babies. The membrane in the throat presents a variety of pictures; it may be so slight as to resemble a faint gray veil on one tonsil, or both sides of the throat may be covered with a thick, grayish-yellow patch and all surrounding parts may be very much swollen. While there is usually some pain on swallowing this is not nearly so great as in an ordinary "sore throat" or tonsillitis. If not checked by proper treatment the membrane is liable to spread rapidly, often extending downward into the windpipe and causing membranous croup or laryngeal diphtheria.

Sometimes it may start in the larynx and then gives rise to hoarseness and later to very difficult breathing, the child appearing to suffer greatly from croup; this is the most dangerous kind of diphtheria, and one in which very quick action is imperative if the child is to be saved. In these severe cases of laryngeal diphtheria very large doses of antitoxin are needed, and they must be repeated in a few hours if required. It may also be necessary for the doctor to put a little gold tube into the windpipe to admit air.

Treatment.—As soon as a mother notices any white,

gray, or yellow spots in her child's throat she should at once send for a doctor; she should not attempt to treat a sore throat of any kind by herself. The child should at once be put to bed and completely isolated until a positive diagnosis can be made by the doctor. If this is done the other children in the family may escape the disease if it proves to be diphtheria. In many cities the Board of Health furnishes little glass tubes and a swab with which to take a culture of a child's throat; after taking the culture the doctor sends the tubes to the Health Department, where they are put in an incubator and developed, then examined under the microscope, and a report sent to the doctor as to what kind of sore throat the child has. All this is a very great assistance and makes the diagnosis and treatment much more accurate. In smaller places the doctor may examine the culture himself, or if this is impossible he will have to treat the child on the general appearance of the throat and symptoms present.

Antitoxin given in full doses and early in the disease is the best treatment. Nearly all up-to-date physicians now believe in the use of it, because they have seen its wonderful results. In many hundreds of cases I have seen it used with the greatest benefit; many times it has saved otherwise hopeless cases, and I have never seen any unfavorable results from the use of it. Occasionally an attack of hives will follow, but this is soon cured and the discomfort is comparatively slight when one considers the great good the antitoxin has done.

Sometimes in twenty-four hours the membrane will have entirely disappeared from the throat. Other members of

the family should also receive a smaller or immunizing dose of the antitoxin to prevent them from contracting the disease. Aside from this very little treatment is needed. The child's bowels should be made to move every day during the disease by some simple laxative like magnesia; it is often advisable to give a dose of calomel at first, followed by magnesia the next morning. The mouth and teeth must be kept clean, and a mild antiseptic spray may be used if the doctor thinks best. The urine should be examined by the physician.

The child must be kept quiet in bed, and the diet should consist of milk and broths at first, with a gradual return to solid food. If fever is present it is best controlled by sponge baths with a little alcohol in the lukewarm water; this is better than drugs. The child should be kept isolated until a culture can be taken from the throat, which will show the absence of any diphtheria bacilli. Sometimes this lasts two weeks, sometimes much longer.

Complications.—The complications of diphtheria which we most dread are paralysis, bronchopneumonia, kidney disease, and heart disease. If, however, antitoxin is given early and in sufficient quantities the child is likely to escape these troubles.

Disinfection.—The room must be carefully fumigated at the close of the disease, and the child bathed and freshly dressed before he is allowed to mingle with other children.

TYPHOID FEVER

Typhoid fever is not common among young children, but as they grow older cases are often seen.

Causes.—This disease is caused by a special bacillus which may be seen under the microscope. It is most often contracted by drinking impure water or (less frequently) milk. Some foods have also been known to harbor the typhoid bacillus—oysters, cheese, and butter.

Symptoms.—The typhoid fever bacillus may be lodged in the system several weeks before the symptoms begin to appear. Even then it is often very difficult to surely tell whether the child is suffering with typhoid fever. It may begin with general lassitude, headache, and a gradual rise in the temperature, as in the case of adults, or the onset may be quite sudden, with vomiting, fever, and prostration. In many cases it is mistaken for an acute attack of indigestion. Diarrhea is present in about half the number of cases, while in other cases there is constipation. The abdomen is often distended and somewhat tender, the spleen is enlarged and there is considerable prostration, the child growing weaker as the fever grows high, and the loss of flesh is quite steady and marked.

Typhoid fever has an eruption peculiar to itself, which may be found in a little more than one-half of the cases. This eruption is most often present at the beginning of the second week of the disease and should be looked for especially on the abdomen. It consists of small, rose-colored spots which come in crops and last about three days—then they fade and another crop appears; this may be continued for a week. If there is a relapse of the fever there is a return of the spots also.

In cases resembling the adult type of typhoid fever the temperature runs a typical course. It generally grows higher every day for a week, fluctuates from one to three

degrees the second week, and then gradually drops the third week, often reaching normal at the end of this time. In other cases among young children the temperature does not run the typical course but jumps at once to quite a height. In mild cases we may expect the temperature to be 103° or 104° F. when at its highest point, and in severe cases to be 105° or 106° F. Relapses not infrequently occur.

The nervous symptoms in children may be quite marked; there is often delirium, headache, or stupor. Hemorrhages from the bowels and perforations of the intestines are quite rare in children.

There is a certain test of the blood in typhoid fever which is often of great value in deciding what the disease is. This is called *Widal serum test* and must be made by an expert doctor. It is not always found even in true cases, but when it is found there can be no further doubt of the nature of the disease. Sometimes it is necessary to make this blood test many times before it can be found positively, and the mother should always be willing to have the doctor take a specimen of the blood of the child as often as he deems necessary. The urine should be tested also and may reveal the nature of the disease quite early in the attack.

Treatment.—In the treatment of typhoid fever absolute quiet and rest in bed are essential. No matter how mild the attack, the child must be put to bed at once and kept there while there is the least fever and for several days after this period. Everyone should be barred from the sickroom except the one needed to nurse the child.

The diet must be fluid for three or four weeks. Milk in some form is usually given every three hours. For young children this should be diluted; or kumyss, mat-zoon, fermilac, and similar fluids may be used as a change. It is often advisable to peptonize the milk partly, or to add Vichy to it if the stomach is at all irritable. Pure water should be given between meals. A number of doctors within the last few years have given their patients gruels made from rice, wheat, or barley, flavoring these with a little mutton or chicken broth and cutting off all milk while the fever lasts. The gruels may be dextrinized if they seem to cause any extra gas or distension of the abdomen. Treatment with typhoid serum, both for the patient and other members of the family, is advisable. The physician must give this treatment himself.

The fever should be controlled by cool sponge baths; an icecap, or, if it is very high, a cold pack may be given. Whenever the temperature reaches 103° F. it is usually well to employ one of these methods to reduce it. They are less exciting and exhausting to the little patient than a full tub bath. Medicines are sometimes needed for the bowels or other symptoms, but they must of course be given strictly in accordance with the doctor's orders.

Disinfection.—All movements from the bowels and also the urine must be carefully disinfected in a solution of bichlorid of mercury—1-1,000—before they are thrown down the closet. Bed linen, nightdresses, etc., should also be disinfected and then boiled separately from the clothing of the rest of the family for two hours. The nurse must be careful to wash her hands thoroughly in soap and water after handling the patient, and disinfect them

frequently. At the close of the disease disinfection of patient, nurse and sickroom is required.

MALARIA

Babies and children of all ages may have malaria. It is most frequent in the spring and autumn, but may occur at almost any season.

Causes.—Malaria is classed with the infectious diseases because it is caused by a special microorganism. This is a little parasite that lives on the blood and may cause either the acute or the chronic form of malaria. Several varieties of this little parasite are known, and according to the particular kind present in the blood, the fever and other symptoms, they present different pictures. For instance, when a chill followed by fever is noticed every day we may know that one particular kind of parasite is causing the trouble; another gives these symptoms on every other day; another every seventy-two hours; still another causes a very irregular fever. A certain kind of mosquito carries the malarial parasite and then gives it to persons through its bite. Certain localities where there are marshes and stagnant water abound in malaria. By draining off the water or using petroleum where the mosquitoes breed most malaria is often stopped in a given district.

Symptoms.—In older children malaria gives much the same symptoms as in adults, but in young babies it is often difficult to make a diagnosis, the symptoms are so irregular. The usual course of the disease in older children is as follows: The child may feel generally uncom-

fortable for a short time, have a headache, or even vomit. This will be followed by a chill, the patient complaining of feeling very cold; the teeth may chatter and the lips and hands become blue; there will be a burning fever, the temperature often running to 105° F. Next the sweat will appear, the child being in a profuse perspiration. All these stages will appear at about the same time every day, according to the kind of parasite present.

The regularity of the fever and other symptoms is the chief point in making the diagnosis, before the blood is examined. Young babies seldom have a chill or sweat; they often show disturbances of digestion and irregular fever which may run very high; sometimes there are convulsions. The spleen is nearly always enlarged, the appetite poor, and the tongue coated.

When malaria has become chronic the child becomes very white, feels drowsy and cross much of the time, and is generally miserable. Many mothers dose their children for worms when they really have malaria; it is unwise to give "worm medicine" until after the blood has been examined for malaria by a competent doctor.

Treatment.—The treatment of malaria consists in making the child as comfortable as possible during the chill by means of blankets and hot water bags, by the use of cool sponge baths during the fever, and by changing the clothes for dry garments during the sweat. Young babies should have the usual food diluted and drink plenty of cool water while they have any fever. Older children should take easily digested foods of a liquid or semisolid variety.

There is one medicine that is really a specific for ma-

laria; this is quinin. Children, as a rule, stand this well and can take larger doses in comparison to their age than adults. In young babies the drug sometimes causes vomiting, and in such cases it is best to give it at night when the baby is taking no food. Before any quinin is given it is an excellent plan to give small, repeated doses of calomel—one-tenth of a grain every hour for ten doses is often ordered even for a baby six months old—but in every case the family doctor must be the one to prescribe this as well as the quinin which follows it. Mothers do a great deal of harm by dosing their children themselves; they should do all they can by giving proper food, baths, fresh air and proper clothing, but when it comes to drugs they should let the doctor prescribe, as the responsibility is his in the end.

The quinin to be given must depend upon the age and condition of the child. Small repeated doses given in a watery solution are usually best for babies where there are no distinct paroxysms; and they take this very well. In older children the taste must be disguised by means of various flavors, such as orange, sarsaparilla, etc. There is now a tasteless form of quinin often prescribed.

Quinin in capsules may be given as soon as a child is old enough to swallow them, but quinin pills should not be given. Chocolate quinin tablets may be given after the fever is under control and a less active form of medicine is needed, but they are not very effectual during a severe attack. When a child has the adult type of malaria larger doses given several hours before the expected chill may be tried. After the quinin is stopped an iron tonic should be given for some time.

Mothers should always be willing to allow their doctor to make an examination of the child's blood whenever he deems it necessary. The hurt to the baby is very slight—not more than a prick from a needle—and it may save weeks of illness and suffering.

TUBERCULOSIS

Causes.—Tuberculosis is caused by a special bacillus, and is, therefore, an infectious and communicable disease. It affects not only the lungs but may involve also any structure in the body. In children the glands of the neck and the bones are very frequently affected as well as the lungs, intestines, and other organs.

The causes of tuberculosis are many. In a large percentage of cases the disease or the tendency to it is inherited; in others it is contracted otherwise; from living in rooms in which another person has lived who has had the disease, or it may develop after one of the other infectious diseases of childhood. The most frequent method of contracting tuberculosis is by means of the sputum from a person afflicted with the disease. The bacillus is contained in this sputum; the sputum is carelessly disposed of, dries, and the little bacillus flies about to be inhaled into the delicate lungs of the poor baby, who then contracts the disease. Babies and children of any age may have tuberculosis. It is claimed that milk from tubercular cows or women may cause tuberculosis in the baby who takes this milk.

Symptoms.—As the symptoms of tuberculosis are so varied they cannot be given in detail here. One type of

tuberculosis much resembles marasmus, so often seen in infants; there is a gradual wasting, anemia, with generally very little cough or fever, unless these develop toward the end of the disease. Other cases show more disturbance of the digestive tract. Other children often have symptoms more like adults; there may be irregular fever or even night sweats; then the cough and signs will be found in the lungs, and later hemorrhages.

Tuberculosis of the glands of the neck is very often seen in childhood. These glands will remain enlarged for a very long time; then they may break down and have to be removed, when they will often be found full of a cheesy substance. Many times in a child who has tubercular glands of the neck no other part of the body will be involved.

One of the most common forms of tuberculosis of the bones is what we know as *Pott's disease*. Many of the poor little humpbacked children whom we so often meet are suffering from this dread disease in the bones of the spine. Hip-joint disease is another form often met with in children. When tuberculosis attacks the brain we see tubercular meningitis.

Treatment.—The treatment of tuberculosis is now much better understood than it was a few years ago, and the cases are not considered necessarily fatal. It is needless to say that a child with any of the forms of tuberculosis should be constantly under the care of a good physician, but there is much that the mother may do to prevent the disease from becoming active if the child has a tendency to it, or to help cure it if it has once become established.

In the first place, if the mother herself is tubercular it

will not be safe for her to nurse her baby. She should either secure a very healthy wetnurse or else give the child cow's milk properly modified. If there are other members of the family who are tubercular they should not be allowed to come in close contact with the baby nor to sleep in the same room with him. The substance expectorated should be put into paper cups and immediately burned. Never under any circumstances should the baby be allowed to be kissed by the person suffering with the disease. All the bedding, clothing, etc., used by the sick person should be burned, keeping everything of his as separate as possible from that of the rest of the family.

A baby who inherits the tendency to tuberculosis or who has shown the first symptoms must spend the greater part of his time in the fresh air; if this is done the chances are that the disease will not spread further. Of course, it is best to take the child to one of the numerous places in the country where the air has been found especially good for tubercular persons, but this is not possible for everyone.

The child should be taught to sleep outdoors in a tent, if possible, or, if not, in a window-tent. For a baby or young child a skillful father (or a carpenter) may contrive a safe and useful little window sleeping-box which has an awning over it to protect the child from snow and rain in winter and from the sun in summer. A sleeping-bag should be used and a woolen hood for the head when the weather is cool; hot water bags may be also employed. This open-air treatment is really wonderful in its results.

The food of tubercular children should consist of easily digested, nourishing things. Milk and eggs should form

a large part of the child's diet, but never should eggs be given to such an extent that the child becomes bilious. Well-cooked cereals are also excellent, and bacon, broths, and, for older children, meat and vegetables in the usual amounts.

Salt baths and sun baths are helpful, and some form of cod-liver oil or iron is usually prescribed.

The tubercular child should not be considered hopeless. One should keep constantly at work and surprising results may be met.

INFLUENZA

(*Grip*)

Causes.—Influenza, or grip, has been considered an infectious disease ever since the little microorganism causing it was isolated and seen under the microscope. Grip may be contracted by one child from another or from an adult; therefore, when there is a case of grip in the house the children should carefully be kept out of the room.

Symptoms.—In older children the symptoms of grip are much the same as in grown persons, but infants and young children often show different symptoms which make the diagnosis very difficult. The first symptoms may be shown at any time from a few hours to a week, or even longer after exposure.

The disease may begin very abruptly, the child appearing very ill all at once; or he may show signs of lassitude and irritability for several days before the acute symptoms begin.

One common form seen in young infants is called the

febrile form. Here there is seen a high fever with very little cold in the head or cough; the baby appears very ill without apparent cause, and there may at times be a convulsion and often vomiting. If the baby is sufficiently advanced in age he may complain of pains in his bones and a general aching all over his body. There is sometimes a bright red rash which resembles scarlet fever, thus making the diagnosis even more difficult. As a rule the high fever will last only a day or two, then subside, leaving the baby very weak, although in a few cases it may continue irregularly for several weeks.

The most common form among older children is known as the *catarrhal form*. This begins suddenly, with, perhaps, a chill and very severe running at the nose and eyes, sneezing, coughing, headache, fever, pains in the joints and muscles, and a little later all the signs of bronchitis. This form also runs an irregular length of time from a few days to several weeks. There is no appetite and there is great prostration.

Influenza, or grip, often affects the stomach or bowels, and is then called the *gastroenteric form*. There is a coated tongue, vomiting and diarrhea, the case much resembling one of typhoid fever.

When influenza affects the brain we have many of the symptoms of meningitis—there is an influenza meningitis.

Complications.—The complications of grip are many and often serious. Grip pneumonia is often met with and may terminate fatally. Abscess in the ear is very common, and often causes great suffering until the drum of the ear is punctured or the abscess breaks of itself; it is one of the complications which should always be thought

of. It generally takes a child a long time to recover his strength after an attack of grip, and there often results a form of malnutrition difficult to cope with. Tuberculosis sometimes develops after grip, also enlarged glands.

Treatment.—The treatment of grip must vary with the different forms of the disease and symptoms as they arise. The child should in all cases be kept in a room by himself as quietly as possible and stay in bed as long as there is any fever, and for two or three days afterward if there is much prostration. The digestive tract should be cleared early in the disease. I generally prefer small doses of calomel, often followed by citrate of magnesia; or castor oil may be given.

The food should be very light and easy to digest, gruels and broths often being better borne than milk. Milk should be diluted with gruels or Vichy; kumyss and similar preparations are also useful. It may be necessary to give stimulants if the child is very weak, but this must be left to the physician in each case.

The high fever should be controlled by frequent sponge baths with alcohol in the water, and an icecap should be kept at the head. Drugs of the coal-tar variety are useful in some cases where the child is old enough to stand them. A nose spray of liquid albolene and a throat spray of a mild antiseptic solution are generally necessary. When the cough is severe or much bronchitis is present inhalations of steam and applications of mustard pastes to the chest are very helpful and may prevent pneumonia from developing.

A tonic of iron or cod-liver oil should be taken when the child is convalescent. If possible a change of climate

should be given. I have found that children convalescent from grip generally respond better to a soft, mild climate where there are pine woods than when they are sent to convalesce by the sea.

Disinfection.—Grip is such an infectious disease that it is only safe to the other members of the family to fumigate the sickroom and then clean it thoroughly at the close of the disease. Formalin candles are convenient to use and do not tarnish as sulphur does.

MENINGITIS

There are a number of different forms of meningitis—acute and chronic: tubercular meningitis, influenza meningitis, meningitis caused by a pus organism, meningitis caused by the pneumonia organism, meningitis caused by the colon bacillus, and the epidemic form caused by its own special microorganism. The first-mentioned forms are usually parts of other diseases and will not be described here, as it is impossible for a mother to recognize them in any case.

Acute Cerebrospinal Meningitis

This disease is apt to occur in epidemics, but may appear in single cases. It is a communicable disease, involving the spine as well as the brain. It has many different forms and symptoms. The time from the exposure to the date when the first symptoms are seen, or period of incubation, is as yet unknown.

Symptoms.—In the ordinary form the trouble will begin with a headache, chill, and vomiting; there may be

pains in back and legs; there is usually stiffness of the muscles, and spasms; there may be restlessness, delirium, or coma. Paralysis of various muscles is common. The child usually lies with head drawn way back. There is generally trouble with the eyes, it being difficult for the child to see, and sight may be lost for a time at least. Deafness may also be present. Skin eruptions are often seen; the lips may be cracked and sore. The temperature is very variable; most often it is quite high at the beginning of the disease— 105° or 106° F.—and it then rises and falls in an irregular manner. The pulse and respiration may be irregular. Usually constipation is present. There is considerable loss in weight or wasting, the child being hard to feed. Bedsores are apt to develop.

The outlook for recovery is always grave. In epidemic forms it is more doubtful than in cases which appear singly. Even when the child recovers there is many times some grave trouble remaining, as deafness, blindness or even loss of speech. It is possible, however, to make a complete recovery.

To be certain of the particular kind of meningitis the child has it is best to have some of the spinal fluid drawn off through a needle and examined in a laboratory. Treatment can then be better decided upon.

Treatment.—The child should at once be put to bed in a cool, quiet room with the eyes protected from a bright glare of light. A bag filled with cracked ice should be kept pretty constantly on his head. The bowels should be kept open by enemas and mild laxatives, like milk of magnesia if the child can swallow well, or this may be given in his food. Careful attention should be paid to keeping

the mouth clean, washing it several times daily with boric acid solution or other mild disinfectant.

After the sponge bath for cleansing purposes, it is well to rub a little alcohol down the spine and on the heels where bedsores are apt to develop. If the skin becomes the least bit broken it may be painted with flexible collodion and rings of cotton covered by gauze bandages should be slipped under the spine where it rests most heavily on the bed; it may also be slipped under the heels or under the head in the case of a baby with little hair.

Feeding is difficult, and a liquid diet of milk, broths, thin gruels, buttermilk, kumyss or peptonized milk is about all that can be attempted while the disease is at its height. When the child does not swallow well, it is a good plan to try feeding with a feeding cup or a medicine dropper—if he has no teeth to bite the glass. At times all food is refused, and in that case a nurse must feed the child by means of a rubber tube attached to a glass funnel; this is called *feeding by gavage*. Water and medicine for the bowels may also be given in this way if needed. The mother should not attempt to use the gavage unless specially taught by her doctor and it is impossible to get a nurse. As the child improves warm baths and massage may be helpful. There is a special serum now prepared that is injected into the spine and is very helpful in many of the cases.

Disinfection.—Duration of the disease is uncertain and relapses may occur. The average case lasts from three to six weeks. Other children should be removed from the house if possible, and the place thoroughly fumigated before they are allowed to return.

INFANTILE PARALYSIS

(Acute Poliomyelitis)

Acute poliomyelitis, or infantile paralysis, is a communicable disease which may occur in epidemics or in single cases. It is an inflammation of the spinal cord. The organism that causes it is so small that it cannot be seen even under a microscope, but experiments on monkeys have proved that it is a living organism and may be destroyed by heat. The period of incubation is also uncertain; usually about ten days elapses from the time the child was exposed until he develops the first symptoms, but monkeys after exposure have been known to develop the disease in from four to thirty-four days. About 80 per cent. of the cases seen occur in the first three years of life, but it is possible to occur at any time. The most likely time for epidemics of this disease to take place is in the warm months from July to October.

Causes.—We are not certain exactly how this disease is carried from one child to another; some observers have thought the house fly might carry it. Some think it is taken into the system through the nose or mouth.

Symptoms.—The usual onset of acute infantile paralysis is very sudden; high fever of 103° to 105° F. or possibly over, prostration, and often vomiting are most often noted. There may be diarrhea, but most often the bowels are constipated; the urine may be retained. These symptoms may continue for several days and then marked muscular weakness is noticed, especially in the legs, and sometimes in the arms; there may be complete paralysis of all four extremi-

ties, or only one member may be involved—each case differs somewhat. In very mild cases no special symptom is noticed perhaps, but only a single restless night. In the morning the apparently healthy child will wake up paralyzed. After the acute symptoms have subsided, there is usually a period of from one to three weeks in which no special change is seen; then gradual improvement is noticed, which continues for about three months. The paralysis remaining after this time is likely to be permanent. In the course of six or eight weeks the muscles shrink from lack of use, or *atrophy*, the limb affected being smaller than the other and often blue and cold.

The outlook for complete recovery is not good, but it is possible for some cases to become normal again. Death may occur but it is not likely to do so. What improvement will take place we cannot tell for some time; none can be expected after two years at least.

Treatment.—To prevent cases from developing we can do little but isolate all children in the acute stages and disinfect the discharges from the nose and throat of patients who have the disease. Anyone taking care of a child with the disease should use an antiseptic nose and throat spray on herself. If it is impossible to send the other children away, their noses and throats should also be sprayed several times daily. In epidemic cases the patient should be quarantined at least a month. Treatment is very unsatisfactory. The child should be kept absolutely quiet in bed for one or two weeks at least; sometimes an icebag or a mustard plaster may be applied to the spine, but there is doubt as to its beneficial effects. During the fever only milk or fluid diet should be given.

Urotropin given early before the paralysis sets in may help to prevent the worst symptoms, but the physician in charge must decide about this.

After the first symptoms of fever, etc., have disappeared massage of the affected parts must be begun and continued for months at a time. A professional person must at first show the mother exactly how to massage the limb, but after a few lessons she may do this herself. Cocoanut oil or olive oil may be used on the fingers when massaging the limb. Alcohol should never be used for this purpose. In some cases electricity is advisable, but never should this be given without the advice of the physician in charge. The child should be taught to make an effort to use the paralyzed limb as much as possible, but the early use of braces, crutches, etc., is not to be advised, as they are relied upon too much. One should wait until all possible improvement has taken place and then these helps may be used if needed. The most nourishing foods, fresh country air, and quiet life with plenty of sleep—all these should be given the child, as they help to build up the general system.

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